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ABSTRACT

Despite the success of some antipoverty programs, it is not evident that conditions in poverty areas have improved; in fact, some indicators show that living conditions in the slums are worsening. One of the biggest difficulties is a lack of data on the nature of, and solutions to, the problems of these areas. Frequently revised data at least as comprehensive as that provided by the decennial census are needed. This project was designed to determine possible means of gathering the needed data so that program planners could make decisions based on facts instead of intuition. Although this is a case study of an inner-city poverty area in Philadelphia, it can be generalized to describe any similar urban area. Both the need for data and the methodology for establishing a manpower information system are developed from a broad perspective. Several data sources are compared in the second volume of this study, which is available as VT 011 115. (BH)

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MANPOWER INFORMATION
FOR URBAN POVERTY AREAS

Volume I

Sources and Systems of Urban Data for the Planning and Management of Manpower Programs

Louis Levine
and
John Herbert Norton

1969

THE PENNSYLVANIA STATE UNIVERSITY
INSTITUTE FOR RESEARCH ON HUMAN RESOURCES
UNIVERSITY PARK, PENNSYLVANIA

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FOREWORD

This report summarizes the findings of a research project which has explored the informational needs of, and potential data sources for, manpower development and service programs in urban poverty areas.[1] The project, conducted under the terms of a research contract between the Pennsylvania Bureau of Employment Security and the Institute for Research on Human Resources of The Pennsylvania State University, has had as its primary objective an investigation of prospects for the provision of the data needed and not currently available for planning, conducting and evaluating programs of community manpower services and manpower-related activities. In particular, it has been concerned with the nature and potential availability of such population and manpower data as are generated as by-products of the day-to-day operations of governmental and private agencies serving the residents of poverty areas. Also of importance has been the question of whether such information, coupled with data from more standard statistical sources (i.e., censuses and sample surveys), might possibly serve as the basis for a system of current estimates of the economic and demographic characteristics of urban poverty neighborhoods.

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[1] A supplementary report containing additional detail on the nature and limitations of specific local data resources has also been issued. See: Louis Levine, John H. Norton and Carol Popet, Manpower Information for Urban Poverty Areas, Vol. II, An Inventory and Appraisal of Local Data Resources in Philadelphia, University Park: The Pennsylvania State University, Institute for Research on Human Resources, 1969.

The geographic focus of the research has been the major inner-city poverty area of north-central Philadelphia, a community of more than three hundred thousand persons, relatively homogeneous with respect to its population characteristics and economic problems yet large and diverse enough in its needs for manpower services to present the likelihood that the research findings may have relevance to all urban poverty areas.

It should be emphasized that the research has been purely methodological in nature and principally concerned with those types of data that assist in the identification of the nature and magnitude of area manpower problems rather than with the problems themselves or with the activities designed for their solution.

The staff of the project has been a group of persons from various universities and with various specializations in economics, education, social work, urban sociology and statistical theory and methods. It has included Dr. Louis Levine of The Pennsylvania State University, Project Director; Dr. John H. Norton from The George Washington University, Assistant Director and Statistician; Mr. Dennis Clark of Temple University's Center for Community Studies; Mr. James B. MacRae and Mr. Samuel Sylvester of Lincoln University; and Mr. Ernest Betcke, Mr. Samuel DiRoberto and Miss Carol Popet from The Pennsylvania State University. All of these have been actively engaged in research at the agency level. In addition, a number of students have served as research assistants, the principal among them being Miss Rona Zucker of The Pennsylvania State University and Mr. Carl Fink and Mr. Charles Oewel of the University of Pennsylvania.

Especially in its planning stages, the research has profited greatly from consultations between the staff and many individuals at all levels of federal, state and local government, in private agencies serving the geographic area studied, and in the local universities. Mr. Vladimir D. Chavrid and members of his staff of the United States Employment Service and the late Mr. N. John P. McHenry and others of the Pennsylvania Bureau of Employment Security have been particularly helpful. Much useful advice and relevant factual information has also been obtained from many others in the Bureau of Labor Statistics, the Bureau of the Census and the various federal agencies with responsibilities for urban programs. The debt is even greater at the local level, for it is obvious--most especially so in the data inventory stage--that no research project such as this one could have been completed without the active cooperation and assistance of the many persons, ranging in rank from heads of agencies and directors of research to interviewers, counselors and statistical clerks, who have given generously of their time and have provided access to their files. Mr. Daniel Fascione, for example, Director of Administrative and Survey Research for the Philadelphia Board of Education, provided not only valuable advice but also such materials as indexed sets of the standard forms used by the school system. With the assistance of his staff, he arranged the necessary visits to schools and interviews with principals, statistical personnel and others involved with the several data-generating activities of the public school operations. Similar acknowledgment should be paid to Mr. Henry Haschke of the District Office of the State Employment Service, Mr. Benjamin Rosenberg of the Pennsylvania Department of Public Welfare, Dr. F. Herbert Colwell of the Philadelphia Department of Public Health, Captain James Herron of the Philadelphia Police Department, Mr. Bertram Todd of the Philadelphia Department of Finance, and their many counterparts in the scores of other agencies visited.

The list of names of persons who were interviewed or who otherwise assisted in the efforts of research is far too long to permit individual citations here; they would number several hundred. But their help has been deeply appreciated. And the willing cooperation received from so many has been, in itself, a significant indication of the major concern which exists for the serious inadequacies of currently available urban manpower data.

Responsibility for any deficiencies of the present report must, of course, lie with the members of the project's staff. For them the research has been a rare and fascinating opportunity to study at first hand--and at the level of minute detail that constitutes statistical measurement--the complexities of modern urban problems and the programs that seek their solution.

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CHAPTER 1

MANPOWER INFORMATION AND URBAN PROBLEMS

The experience of recent government programs for the alleviation of urban poverty has amply confirmed the inadequacy of present information, both on the nature of poverty-area problems and on the means to their solutions. Despite the obvious successes of some programs in raising individual incomes and living standards by such expedients as the creation of new jobs and the training of persons to fill them, there is no truly conclusive evidence that poverty-area conditions have materially improved. Indeed, some statistical measures of poverty, such as numbers on welfare rolls, indicate an increase rather than a reduction of the serious problems of the urban slums whose disrupting influences on the economic life of the major cities of the United States serve to amplify the already urgent demands for greater effectiveness in campaigns against poverty. Most types of antipoverty programs, therefore, seem likely to be continued at great and enlarging costs, even though it becomes increasingly evident that there is no immediate way in which to demonstrate adequately their effectiveness or lack of it. Are the programs having the results they were designed to produce? Do the results justify the costs? Which of the alternative--or competitive--programs are best suited to accomplish a particular aim? Have program resources been properly allocated among areas and population groups? Such questions are more and more often raised; and the lack of adequate answers constitutes one of the least recognized, most important and, perhaps, most complex of the obstacles to be faced in the conduct of the war on poverty.

MANPOWER PROGRAMS AND THE NEED FOR INFORMATION

The goals of manpower programs for poverty areas are clear and simple: more and better jobs for a growing and inadequately utilized work force, and greater opportunities for the acquisition of the skills and other requisites to fill such jobs. Yet the progress toward these goals has proved difficult, frustrating and often unsatisfactory. Traditional government policies of economic stimulation of the demand for labor have had little or no impact on the residents of the urban slums, at least if the all too infrequent surveys of employment experience in poverty areas can be believed. Such surveys continue to show intolerably high rates of unemployment and non-participation in the labor force, while substantial numbers of jobs remain unfilled. The evidence indicates malfunctioning--in poverty areas at any rate--of what has been thought to be a relatively automatic economic system that matches jobs with a labor supply competent to fill them.

Recent legislation has recognized this failure; and radical changes have taken place in the programs that provide manpower services to the residents of poverty areas. For example, no longer are such services as individual counseling and job placement available only to those who seek them out (the poverty-area resident was rarely found who was aware either of their availability or usefulness); rather they are taken directly to the individuals who need them, and that in the very neighborhoods where they reside. Moreover, the services themselves are no longer limited to the conventional ones of counseling and placement; the spectrum of needs inherent in assisting an individual to reach employable status ranges from training in skills and work habits through help with immediate health or financial problems. Not the least of the complications to be encountered in providing manpower services thus broadly defined are those of obtaining cooperation between the variety of specialized manpower, welfare, health and social service agencies, all of whom might have an essential contribution to make in finding employment for a single individual.

It is the unconventional nature of such programs and services and the lack of precedent for them that complicate the problem of providing the information suitable for their proper planning, adequate administration and significant evaluation. Data on the needs of the potential clientele, on their personal, economic and social characteristics, and even on their geographic location are almost entirely lacking. The only regular and comprehensive measurements of population and labor force characteristics for poverty-area residents are those of the decennial censuses, data which have been largely obsolete for operational purposes by the time of their publication. The program planner or administrator has been forced, in the main, to work with little or no information other than that provided by his own necessarily limited personal experience. Ideally, population data for program planning and management should at least have the scope and comprehensiveness of the data provided by the decennial censuses, although greater detail and currency would be desirable. The censuses do not enquire sufficiently into the various impediments to individual employment; and they cannot, therefore, provide statistical bases for such fundamental acts as the determination of the particular needs for manpower services in various population groups and in different geographic areas or of priorities in the allocation of services among those groups and areas.[1] Nor have means been found to make it economically practical to provide current census or other household survey data at intervals frequent enough to permit the adaptation of programs to changing conditions in the areas which they serve. While any demand for greater currency of census data may seem naively idealistic, nevertheless it has become more and more evident that the annual provision of current population characteristics should be the minimal requirement if programs are to be directed toward existing and emerging problem situations rather than toward those of the past.

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[1] Without doubt, sample surveys, such as those that were conducted by the U. S. Department of Labor in ten urban areas in November of 1966, would be capable of supplying most of the necessary population data; but their prohibitive costs make them unlikely sources of information on the detailed characteristics of individuals in the many small areas for which manpower programs must be formulated. Moreover, the variation of service needs among population groups and geographic areas makes estimates for the nation's overall urban poverty-area population of little usefulness in planning individual area programs.

If information on the population is of critical importance in the effort to improve the employability of the present and potential labor supply of the poverty areas, data are no less significant which reveal the demand for labor as evidenced by measures of current employment opportunities and projections of trends for the future; and information on specific services rendered and on their effectiveness is an equally obvious prerequisite for efficient administration of poverty programs and for realistic evaluations of their achievements.

It is clear that the success of the battle against poverty demands, in part, the expansion of the existing urban manpower data system. In addition, the system must be made flexible enough to facilitate coordination and collaboration between the many agencies whose services and activities are relevant to the ultimate solutions of poverty-area problems. Not only must provision be made for the data requirements of local organizations with direct operational responsibilities in the areas they serve, but also for additional specialized needs of state and federal agencies--of which many of the local organizations are components--in their planning, budgeting and other managerial activities.

SOURCES AND SYSTEMS OF URBAN MANPOWER DATA

It has been observed that, with the exception of such occasional sample surveys as those conducted by the United States Department of Labor in ten urban areas in November, 1966, only the decennial censuses of population offer statistics that begin to approach the degree of detail and comprehensiveness necessary to the planning and administration of manpower programs. This statement is hardly meant to imply that survey and census data are unusable for the purpose. With their ability to provide reliable information on entire populations, surveys and censuses can and must continue to play a critical role in any information system devised to meet the requirements of poverty-area programs. However, because of the costliness and, therefore, the infrequency of their provision, the data that they produce can make little more than a slight contribution to program evaluation. Even if data as detailed as those projected for the 1970 Census were available today, the information would still be insufficient (because of the limited number of questions that can be asked on the Census forms) on the specific needs of the poverty-area population and on the extent to which existing programs have met them. It is obvious that other means must be found to fill the demands for additional detail and for current population statistics during the intervals between publications of the findings of censuses and surveys.

One possible source of population data has long been known to lie within the very activities that provide manpower services; for every individual person who applies to them--job seekers, students, welfare cases and many others--must invariably complete a lengthy application form, or other such record, which may often contain more detail in questions on manpower characteristics than appears in conventional population surveys. The data so acquired serve the working needs of the agencies; and, when statistical resources occassionally permit, they are tabulated as indicators of the characteristics of that particular segment of the population that receives the agencies' services. Yet these important records remain nothing more than strictly operational documents, eventually retired from the agencies' active files. Their potential usefulness in supplying the critical need for general population information goes unconsidered. This is partly due to the natural, and somewhat justifiable, skepticism of the experienced statistician who recognizes the problems of comparability, comprehensiveness and accessibility inherent in the use of agency records. But the fact remains that supplementary sources of population data must be found; and, in the absence of other alternatives, there may be no choice but to devise means to open the way to the consideration and use of operationally derived data for program management and general statistical purposes.

THE NORTH PHILADELPHIA PROJECT: RESEARCH ON THE FEASIBILITY OF A POVERTY-AREA DATA SYSTEM

The identification of the specific dimensions of the various information problems thus far described and of the possibilities for their solution was the principal motive of the research whose findings are reported here. It was clear that first-hand inspection of existing information systems was essential if the limitations of available data and the prospects for improving them were to be discovered. To this end it was necessary to select a geographic focus, a community which would be representative of most major urban poverty areas and whose population and service programs would be diverse enough to ensure a full spectrum of data potentials and difficulties to be met.

Such an area is the north-central section of Philadelphia, Pennsylvania, a poverty neighborhood with a population of more than 300,000 persons which is, as far as it is known, relatively homogeneous with respect to manpower characteristics and economic problems, and which is served by literally hundreds of public and private manpower and manpower-related organizations--if one counts all the agencies, from the giant public school system to the neighborhood welfare and social services, who contribute to the education, training, counseling and job placement of the citizens. The "North City" poverty neighborhood of Philadelphia was therefore chosen for study;[1] and all of its manpower activities were recognized as potential producers, as well as consumers, of the much sought after data.

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[1] A more specific definition of the "North City" area and of the logic that dictated its choice for the project appears in the subsequent chapter.

The immediacy of the data needs and consideration of the costs of the research and of the time limits placed upon it dictated a pragmatic approach to meeting the goals of the project. It seemed appropriate to begin by making as exhaustive an inventory and appraisal as possible of "North City" data currently or potentially available from censuses, special surveys and the records and reports of all the area's manpower and other related agencies. A comparison of the known data needs with the results of the inventory was expected to reveal what missing information might be most profitably acquired and, perhaps, to point out the most efficient means to acquire it.

Before such an inventory could be conducted among the agencies at the local level, however, it was obviously necessary to hold a series of conferences and interviews with persons in federal and state manpower and statistical agencies in order to explore the data problems from their points of view, to gain additional insights into the nature and organization of the various manpower programs, and to secure the cooperation of the agencies themselves. Similar interviews were equally necessary in the Philadelphia area, not only with officials of the manpower and manpower-related agencies, but also with other government personnel, community leaders and university researchers familiar with the area manpower situation. This preliminary phase of the project's operations also included a search for any existing special tabulations of Census or survey data pertaining to North Philadelphia.

The limited resources of the project made it infeasible to consider in detail such data on general area economic conditions for the "North City" as, for example, types and levels of business and industrial activity, although they are, indeed, relevant to manpower planning. Rather, it was deemed advisable to concentrate less on aspects of the demand for labor than on aspects of the labor supply itself for which accurate data are lacking at a time when they are most critically wanted: statistics on the poverty-area population and labor force, such as numbers of residents of particular areas by age, sex, race or minority group, income, education and the many other categories relevant to determinations of employability or employment status.

Early in the course of the subsequent investigation of local agency data, it became evident that the scores of small agencies serving the "North City" area had neither the volume of activities nor the quality of detailed information necessary to be regarded as having any immediate potential as statistical sources. Hence, attention was focused upon the data systems of the large public agencies whose quantities of statistical information and standardized forms and reports most easily lend themselves to processing and assembly. Even here, certain difficulties became apparent at the outset. There was no consistent pattern of service-area jurisdictions that coincided with either the "North City" area or with its component parts; and thus was eliminated the possibility of using existing tabulations from the chosen agencies' recurring administrative reports to reveal the population characteristics of the neighborhood. In addition, problems arose from the fact that poverty-area residents themselves were not always necessarily confined in their service-seeking activities to the agencies' jurisdictional boundaries or even to those of the "North City." Indeed, some agency services are offered to residents of any area at all, without restrictions. It immediately became clear that research would have to be concentrated upon primary records and upon the problems of aggregating the information from such records into totals for the poverty neighborhood on the basis of individually listed addresses of residence.

At this stage of the research it was particularly disappointing to find that, while relevant manpower data are abundant in agency records, almost none are currently tabulated. The absence of tabulations for the poverty area or for any of its parts proved a major obstacle for the project, since it had been hoped to demonstrate the potential usefulness of the data for a comprehensive information system through the construction of estimates of particular population characteristics. Even more naive had been the hope to test such estimates against information from alternative sources as a check on their adequacy. It was, of course, discovered that there was no relevant information from alternative sources.

Nevertheless, as will be seen from the discussions in the chapters that follow, there are still ample grounds for the belief that data from agency sources can and will play a major part in solutions to the urban data problems. For such data exist in truly massive quantities and can be made accessible for any area. Furthermore, for the present at least, their translation into usable estimates, although no simple process, appears to be the only economically practicable means to supply the information so critically needed for poverty-area programs.

CHAPTER 2

DEFINING POVERTY AREAS: ALTERNATIVE CONCEPTS AND THEIR LIMITATIONS

Few are the people who cannot describe with ease and accuracy the slum or the ghetto, as the urban poverty area has been named. It is a sort of city within a city; and in the nation's major centers it becomes increasingly true that its residents are non-white. It is characterized by the low incomes of its inhabitants, by generally substandard housing and by a variety of economic and social conditions that are in part the cause and in part the effect of poverty: high unemployment, low educational attainment and a high incidence of health and social problems.

In Philadelphia, as in most cities of comparable size, there is more than one such area. To the north of the city's downtown business district, somewhat separated from it by a narrow band of commercial, industrial and park areas, and extending from the Delaware to the Schuylkill Rivers, there lies a slum area which contains perhaps twenty percent of the city's population and which is in reality a collection of communities including enclaves of low-income whites and Spanish-speaking groups among its preponderantly negro residents. To the west of the business district and on the other side of the Schuylkill River, there is a second largely non-white area with somewhat less than half the population of the first; and adjoining the business district to the south and southwest is yet a third of approximately the size of the second. There are still other sections of the city, "poverty pockets" as they are sometimes rather pathologically called, whose relatively small populations have essentially the same characteristics and problems as those of the major slums.

It is the sheer size of the major poverty areas--in Philadelphia, for example, the individual population of each of the three major poverty areas exceeds that of any Pennsylvania city except Pittsburgh--and the heterogeneity of their needs for manpower and other services that have generated the need for explicit definition of the term "poverty area." Obviously, the limited amount of funds available for the various antipoverty programs has necessitated concentration of effort on those areas where the needs are greatest. Moreover, the requirements of efficient program management and administration in the rendering of services to so many persons has, in turn, necessitated the clear delineation of a number of administrative districts for city-wide programs. And, finally, the decentralization of manpower services to the poverty neighborhoods themselves has made the need for geographic definition of districts all the more imperative.

POVERTY AREAS AND TRADITIONAL STATISTICAL AREA CONCEPTS

Population and manpower data are essentially totals obtained from counting persons with varying characteristics (age, sex, race, occupation and the like) and classifying them into groups according to the characteristics thus statistically portrayed and according to specified geographical areas. As an example of such data, a certain number of persons are unemployed at a given time in the United States as a whole, in any one state, in a metropolitan area, in a county or a city, and so on down to such basic units of area as the census tract, a somewhat arbitrarily defined geographic entity which may or may not follow political or natural boundaries and which usually has a population of about 4,000 persons. None of these areas is necessarily a poverty area, of course; and only the metropolitan areas are consistently defined on the basis of economic as well as political boundaries.

Area Labor Markets and
Standard Metropolitan Statistical Areas

The concept of a labor market is a useful economic fiction. Unlike most markets, it neither physically exists nor deals with homogeneous and easily identifiable commodities. Hardly fictional, however, are the geographical dimensions to the process by which individuals offer their services and employers recruit persons to fill their job vacancies. And while some groups (especially the affluent) appear willing to commute longer distances to work than others, and while some employers likewise find it necessary to recruit outside the area to which they may belong, it is usually possible to draw a set of boundaries around a major city such that most of the demand for labor can be filled by the available supply within them.[1]

Present criteria for the establishment of a standard metropolitan statistical area have evolved over the last twenty years from the earlier (and still highly relevant) concept of the area labor market. They require the presence of a central city of 50,000 or more inhabitants and the inclusion of neighboring cities which are economically and socially integral with it. Adjacent counties are also included if their labor force is at least seventy-five percent non-agricultural and if certain other criteria of urbanization and economic integration are met.[2] The areas thus defined are not entirely without their limitations, especially since their boundaries must follow the lines of counties or of comparable geo-political entities, and since they usually include far more actual area than that within which jobs are in reality available to the residents of their urban poverty areas.

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[1] A discussion of the concept of the area labor market and its limitations may be found in Herbert S. Parnes, "The Labor Force and Labor Markets," Employment Relations Research, New York: Harper and Brothers, 1960, pp. 1-42. A lengthy bibliography of other works is appended to this article.

[2] For a more detailed definition of the concept of the standard metropolitan statistical area, see: U. S. Bureau of the Budget, Standard Metropolitan Statistical Areas, Washington: Government Printing Office, 1967.

As an example, the standard metropolitan statistical area of Philadelphia is composed of five counties in Pennsylvania and three in New Jersey,[1] the inclusion of all of which is thoroughly defensible for manpower and other economic analyses; for there is substantial commuting of workers across the county lines within the area and relatively little across its outer boundaries. Yet it is doubtful that any substantial proportion of the "North City's" residents commutes more than a few miles into Philadelphia's large suburban periphery. Still, the concept of a metropolitan area is a necessary one, even though the area focus of interest for manpower planning is shifting to such larger multi-state economic regions as Appalachia and to the very small and still relatively indeterminate urban poverty areas.

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[1] In addition to Philadelphia County with its more than two million residents, the area includes the counties of Bucks, Chester, Delaware and Montgomery in Pennsylvania and Burlington, Camden and Gloucester in New Jersey. The total population is about four and a half million persons. The area is somewhat interdependent economically with the Trenton and Wilmington metropolitan areas. For a detailed discussion of the various interdependencies, see: Richard W. Epps, "Foundations of Interdependence," Business Review, Federal Reserve Bank of Philadelphia, December, 1967, pp. 3-12.

The standard metropolitan statistical area as defined is pertinent to the present study for three major reasons. First, and perhaps most important in the analysis of poverty-area manpower problems, it will include the entire area within which the poverty-area work force may reasonably be expected to seek jobs without having to commute an excessive distance; second, it offers a prototype for the use of economic criteria in area definition; and third, it is frequently the only alternative conception of an urban area for which current and detailed manpower data are available.

Defining an Urban Poverty Area

Because the concept of the standard metropolitan statistical area has become so generally accepted, it may be safely assumed that, when statistics for an area such as metropolitan Philadelphia are published by the Bureau of the Census, the Pennsylvania Bureau of Employment Security or other agencies, the data pertain to the standard eight-county area (unless a statement to the contrary is made). Unfortunately, no such generally acceptable definition exists for poverty areas. Naturally, they will require identification on the basis of economic and social criteria: low incomes, low levels of education and skills, overcrowded housing, high rates of unemployment and of health and social problems. Also, there will be evidence of the existence of a community, or contiguous group of communities, whose residents will reflect these characteristics of poverty with an appropriate degree of consistency. But such criteria must eventually become part of a commonly recognized set of determinants for the geographic boundaries of poverty areas.

The Bureau of the Census and other government agencies have experimented extensively in the use of 1960 Census data as indicators of the physical location of poverty.[1] Sadly, their results have been far from satisfying. The individual criteria are highly inconsistent as designators of an area; and, because 1960 data must be used, they fail to reflect the rapidity of change in the characteristics of the populations of many inner-city areas that results from urban renewal and other factors. In spite of these shortcomings, such experimentation must be recognized as essential if a statistical means is to be developed for the identification of poverty areas; and the 1960 data constitute the only available information for the purpose.

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[1] See, for example, U. S. Bureau of the Census, 1960 Census of Population, Supplementary Reports, Poverty Areas in the 100 Largest Metropolitan Areas, PC(S1)-54, Washington: U. S. Bureau of the Census, November 13, 1967. The criteria used for poverty area identification were: (1) percent of families with money incomes under $3000 in 1959, (2) percent of children under eighteen years of age not living with both parents, (3) percent of persons twenty-five years old and over with less than eight years of schooling, (4) percent of unskilled males (laborers and service workers) in the employed civilian labor force, and (5) percent of housing units dilapidated or lacking some or all plumbing facilities.

Actually, 1960 Census data, by census tract, do reveal concentrations of poverty in Philadelphia in the three areas already described as lying to the north, west and south of the central business district.[1] The existence of these concentrations may be seen at a glance in each of the three maps which follow (Figures 1, 2 and 3) as the darkest areas near the center.[2]

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[1] See: U. S. Bureau of the Census, U. S. Censuses of Population and Housing: 1960, Census Tracts, Final Report PHC(1)-116, Washington: Government Printing Office, 1962.

[2] These and other relevant maps appear in U. S. Department of Labor and Pennsylvania Bureau of Employment Security, Manpower Planning Report for the Philadelphia, Pennsylvania Area, Manpower Planning Report No. 2, Washington: U. S. Department of Labor, June, 1968; along with data for specific poverty areas. Still

But from the same maps it is also clear that the statistical criteria portrayed--income, unemployment and proportion of non-white residents--vary considerably for any given set of census tracts. The same kind of variation could be shown for levels of education, crime and juvenile delinquency rates, numbers of welfare recipients or any other indicators of poverty for which data are available. Such indicators show the approximate locations of poverty, but the final designation of poverty area boundaries must be in part a compromise between the conflicting indications of the statistics and in part an exercise of more generally informed individual judgment.[1]

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other similar maps and data appear in: U. S. Department of Labor, Bureau of Labor Statistics, Income, Education and Unemployment in Neighborhoods: Philadelphia, Pennsylvania, Washington: U. S. Department of Labor, January, 1963. Data of the latter publication are special tabulations of 1960 Census information.

[1] Analysis can often resolve conflicts among statistical indicators of poverty. For example, one Philadelphia tract was among the lowest in average income and yet among the highest in average educational attainment. What the Census data did not show was that its residents were largely University of Pennsylvania students. But the real problem with these data is their obsolescence, for it is certain from the shifting of areas of residence of Philadelphia's non-white population in the last eight years that the patterns of Figures 1, 2 and 3 would be much different if it were possible to reproduce them with current data.

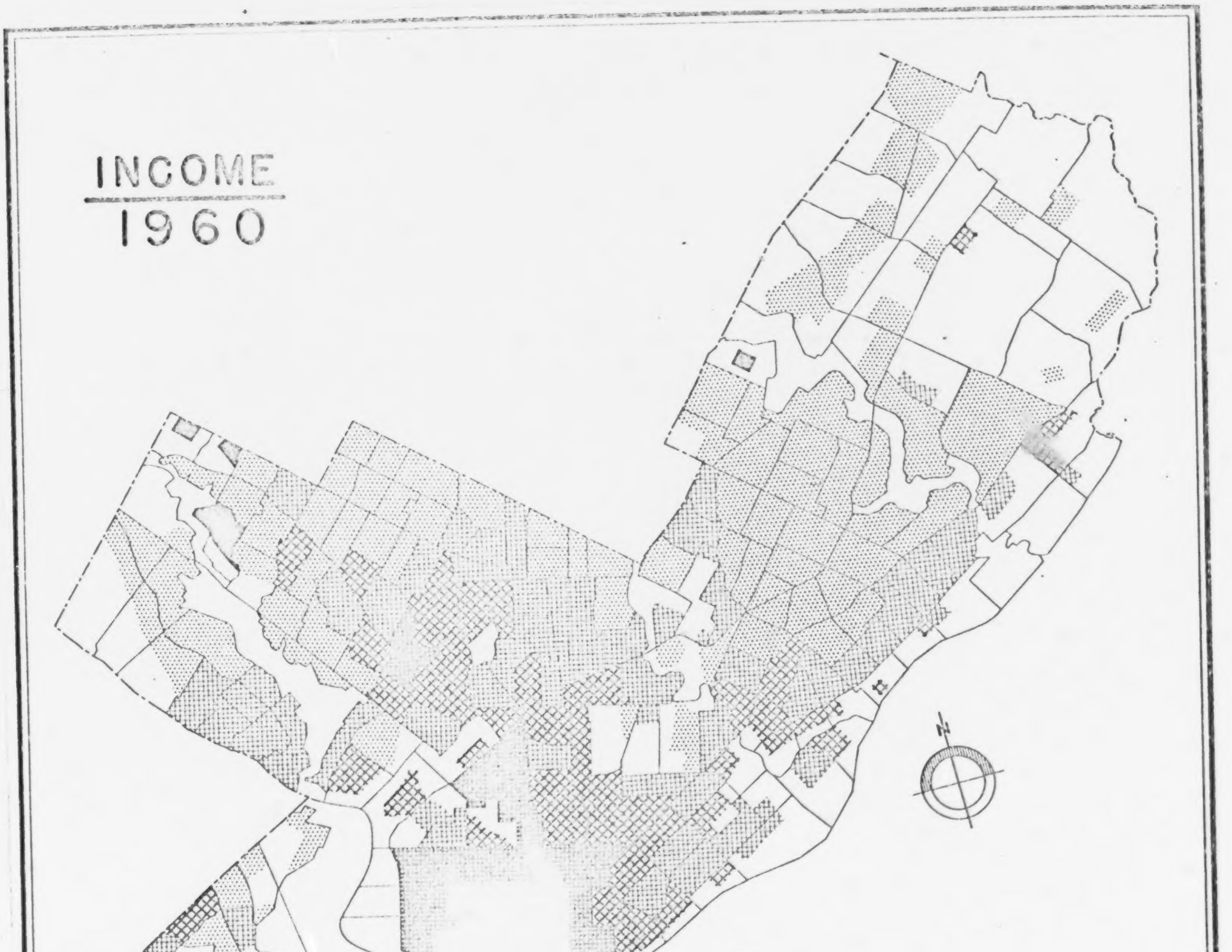

INCOME
1960
N
MEDIAN INCOME IN 1959,
FAMILIES AND UNRELATED INDIVIDUALS
MORE THAN 30% BELOW CITY MEDIAN (LESS THAN $3353)
11-30% BELOW CITY MEDIAN ($3353-$4309)
±10% OF CITY MEDIAN ($4310-$5268)
11-30% ABOVE CITY MEDIAN ($5269-$6225)
MORE THAN 30% ABOVE CITY MEDIAN ($6226 OR MORE)
PHILADELPHIA: $4789
1960
PHILADELPHIA CENSUS TRACTS
PHILADELPHIA CITY PLANNING COMMISSION
0 1/2 1 2 3
SCALE IN MILES
BASE MAP PREPARED BY PHILADELPHIA CITY PLANNING COMMISSION

Figure 1: Income of Residents of Philadelphia Census Tracts as Shown by 1960 Census Data

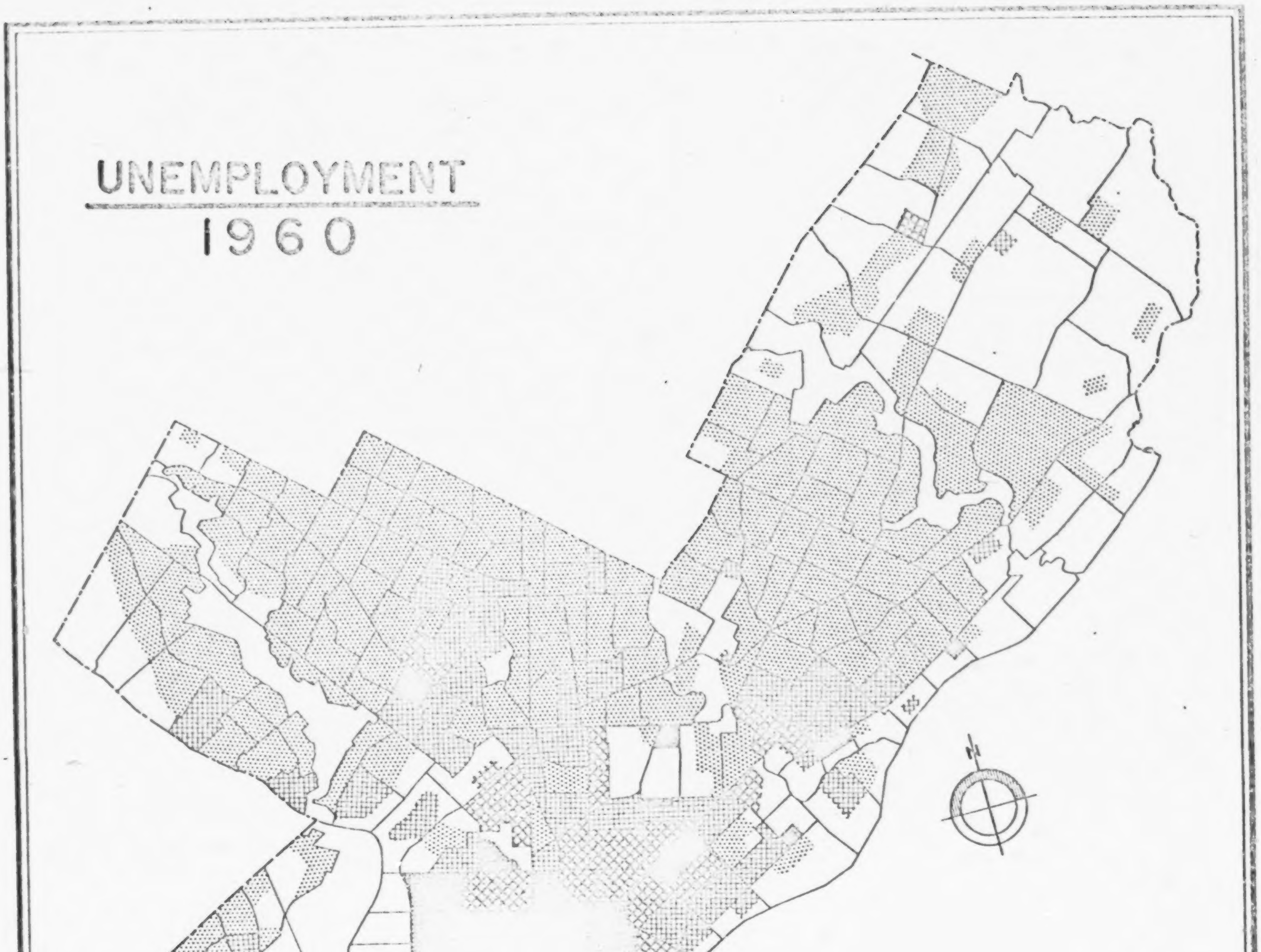
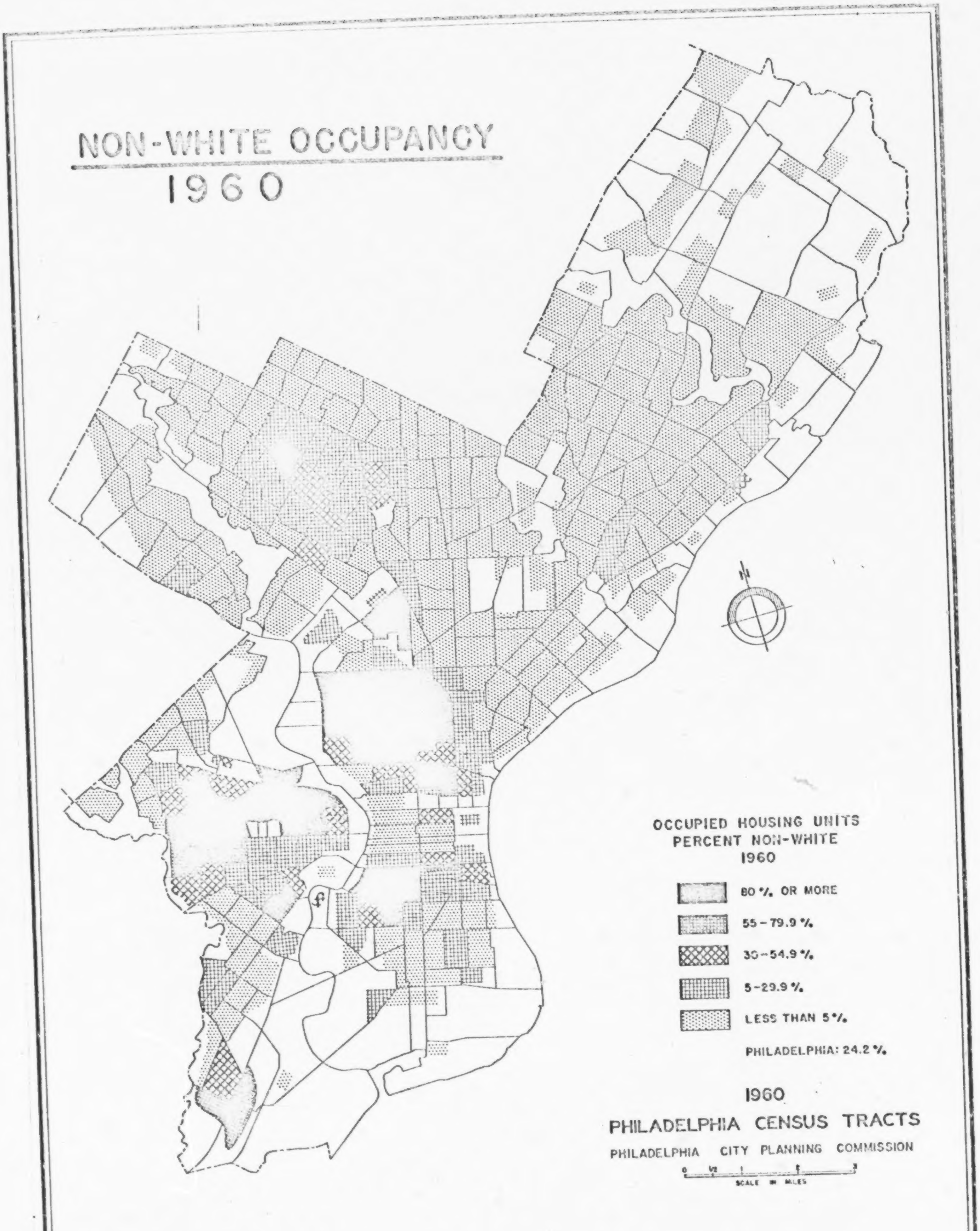

UNEMPLOYMENT
1960
PERCENT OF CIVILIAN
LABOR FORCE UNEMPLOYED
1960
13 % OR MORE
9-12.9 %
7-8.9 %
5-6.9 %
LESS THAN 5 %
PHILADELPHIA: 6.5 %
1960
PHILADELPHIA CENSUS TRACTS
PHILADELPHIA CITY PLANNING COMMISSION
SCALE IN MILES
BASE MAP PREPARED BY PHILADELPHIA CITY PLANNING COMMISSION

Figure 2: Unemployment in Philadelphia Census Tracts as Shown by 1960 Census Data


NON-WHITE OCCUPANCY
1960
OCCUPIED HOUSING UNITS
PERCENT NON-WHITE
1960
80 %, OR MORE
55 - 79.9 %
30 - 54.9 %
5 - 29.9 %
LESS THAN 5 %
PHILADELPHIA: 24.2 %
1960
PHILADELPHIA CENSUS TRACTS
PHILADELPHIA CITY PLANNING COMMISSION
0 1/2 1 2 3
SCALE IN MILES
N
BASE MAP PREPARED BY PHILADELPHIA CITY PLANNING COMMISSION

in Philadelphia Census Tracts
as Shown by 1960 Census Data

THE "NORTH CITY" POVERTY AREA

The many considerations relevant to the definition of a specific poverty area may be further illustrated by the reasoning which led to the choice of the boundaries of the "North City," the area focus of the present research (Figure 4).[1] Population size and diversity of problems, needs for manpower services, and existing manpower programs have all been previously cited as reasons for the selection of the area. But these factors, although they did indicate the choice of the North Philadelphia area rather than of its smaller counterparts within the city, were of little help when the problem of specific boundaries arose.

Natural boundaries would have been desirable for the area, since they can distinctly separate a city's

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[1] The "North City" area as chosen for the project extends from Vine Street on the south to Lehigh Avenue on the north, and from the Schuylkill River on the west to, roughly, Front Street on the east. With some misgivings, the authors were led by their analysis to a choice identical with the area originally proposed in Philadelphia's application for a "Model Cities" grant. The first "Model Cities" area was subsequently reduced to meet federal requirements with respect to population size. However, the actual area of poverty problems is even somewhat larger than that defined here. Hence the misgivings here expressed and still felt concerning the present definition.

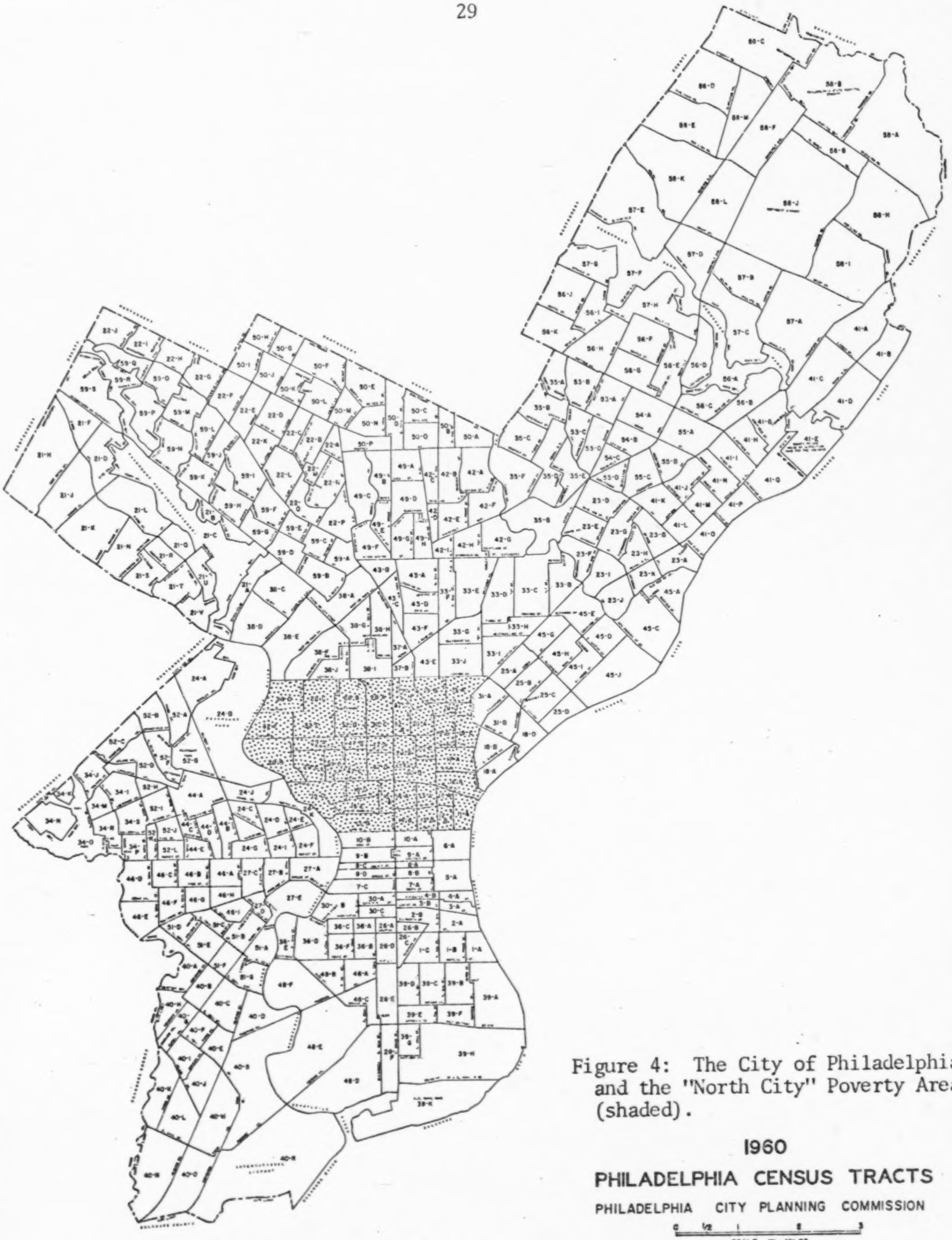

Figure 4: The City of Philadelphia and the "North City" Poverty Area (shaded).

1960
PHILADELPHIA CENSUS TRACTS
PHILADELPHIA CITY PLANNING COMMISSION
0 1/2 1 2 3
SCALE IN MILES

neighborhoods. On the west, there was no valid objection to the choice of the Schuylkill River as one limit. But the otherwise logical extension of the area eastward to the Delaware River would have included an area of white, lower-middle income residents with characteristics substantially different from those of the poverty area. It was therefore necessary that the remaining boundaries be major streets, with the southern one, at least, a multilane expressway.

The statistical nature of the project dictated conformity of the boundaries insofar as possible with the areas for which data were available. And the use of census tract boundaries would have been desirable in any case, because of the need to consider such data as those already illustrated. Apart from the statistical indicators of poverty, tract boundaries were the principal consideration in setting the irregular eastern limits of the "North City" area; and they also coincided with the choices of boundaries on the remaining sides. The boundaries of the administrative districts of the various manpower agencies and others serving the area were also considered, but to no avail; for the administrative districts neither coincided with one another nor, most of the time, with any statistically justifiable poverty area definitions.[1]

The various statistical indicators of poverty were the most inconclusive with respect to the justification of the northern limit for the area; the final choice was necessarily a compromise between them. Both from the personal knowledge of members of the project staff and from interviews with others at work on poverty problems, it was clear that the poverty area had been expanding to the north in recent years. The broad, straight line of Lehigh Avenue seemed the best choice for a northern boundary and was selected in spite of the fact that conditions in many of the blocks immediately beyond it were not apparently any better than those just to the south.

Patterns of public transportation may, in some cities, constitute a factor contributory to the identification of the limits of poverty areas; but this is not true for Philadelphia, where such an area as the "North City" is well served by both north-south and east-west surface and subway lines which prevent its isolation

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[1] The problem of conflicting agency districts is discussed at length in the second volume of this report.

from the rest of the city. Moreover, while areas of commercial and industrial activity are found in many parts of the "North City," only on the south are they a factor in determining its boundaries.[1] Actually, the non-residential segments of the "North City," along with such factors as school and shopping center locations, contribute less to the establishment of limits to the poverty area as a whole than they do to the identification of the several communities that exist within it.

"MODEL CITIES" AND OTHER POVERTY SUB-AREAS

Since it appears almost certain that the locus of poverty in North Philadelphia extends throughout the "North City" as here defined, the term poverty sub-area seems an appropriate designation for the smaller geographic sectors established within it to meet the needs of different programs. Recognition of the existence of such areas is essential in the development of a multiple-purpose urban information system, if data are to be provided commensurate with the needs of program planning and management. The problem of defining sub-areas appropriate for a statistical system is, however, vastly complicated by the already mentioned fact that the boundaries of agency administrative districts rarely coincide. And, in the hierarchy of size, they range from major sub-areas such as those illustrated for the "Model Cities" and the Concentrated Employment Program in Figure 5 to such lesser ones containing a relatively few blocks as the "feeder areas" of the public elementary schools.

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[1] As has been explained, the poverty area is partially limited on the south by a narrow band of commercial and industrial activities which sets it off from the downtown business district.

The "Model Cities" Area

The history of the successive contractions of the area boundaries proposed for Philadelphia's "Model Cities" program illustrates well the facts that political considerations and the limitations of program budgets may be more important for area definition than statistical criteria reflecting economic and social conditions. As may be observed by inspection of the map in Figure 5, the "Model Cities" area lies entirely

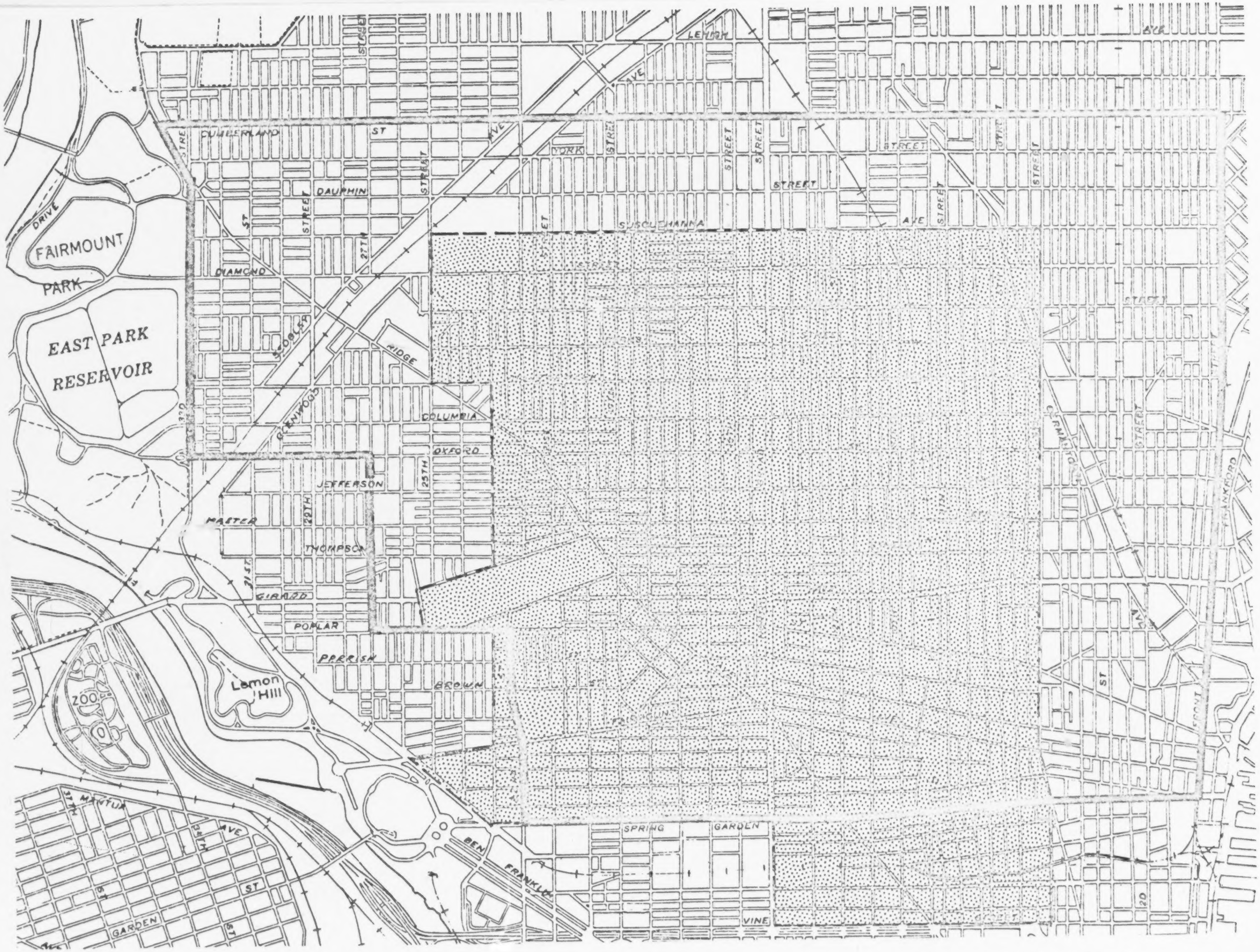
FAIRMOUNT
PARK
DRIVE
EAST PARK
RESERVOIR
CUMBERLAND
ST
DAUPHIN
STREET
27TH
DIAMOND
SCOBLER
GLENWOOD
RIDGE
AVE
COLUMBIA
OXFORD
JEFFERSON
25TH
22TH
MASTER
THOMPSON
21ST
GIRARD
POPLAR
PARRISH
BROWN
Lemon
Hill
ZOO
MANTUA
AVE
34TH
37TH
ST
GARDEN
BEN
FRANKLIN
SPRING
GARDEN
VINE
LEHIGH
YORK
SUSQUEHANNA
GERMANTOWN
AVE
FRANKFORD
FRONT
20

Figure 5: The "North City" and Its Component "Model Cities" (solid line) and Concentrated Employment Program (shaded) Areas.

within the "North City." Its boundaries coincide with those of the larger poverty area only for a few blocks along Front Street; and, in general, census tract lines have not been followed. Yet considering the size and duration of the proposed "Model Cities" programs and the information requirements for their development and administration, this very large segment of the "North City" is a critical one for the provision of data.[1]

The Concentrated Employment Program Area

The smaller shaded area in Figure 5, lying partly within the "Model Cities" area and partly to the south of it and, again, existing entirely within the "North City," has been designated on the basis of 1960 Census data as the principal locus of Philadelphia's "hard-core" unemployed and, therefore, as the area whose residents may be eligible for the services furnished by the city's multiple-agency Concentrated Employment Program.

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[1] The northern and eastern boundaries of the "Model Cities" area were largely matters of arbitrary choice; but the southern boundary along Spring Garden Street follows a line between predominantly residential and predominantly industrial and commercial areas. The "North City" areas excluded on the west contain sections of Fairmount Park, residential areas of mixed whites and non-whites and one residential area in the southwest corner which contains high-rise luxury apartment buildings.

The Concentrated Employment Program area was also the one chosen for the special sample survey of manpower characteristics conducted by the Department of Labor in November of 1966.[1] The survey showed, indeed, that the area's residents had serious economic problems. But it also showed the inadequacies of the 1960 Census's indicators of poverty for current use, since the eighteen census tracts selected as the city's worst contiguous set on the basis of 1960 data included several whose entire populations had moved elsewhere as the result of urban renewal. There is no doubt, however, as to the poverty of most of the people still living in the area. But it has not been possible to convince those who live in the tracts immediately adjacent to the program area that they are any less deserving of federal assistance than their neighbors who reside within it. It seems likely that similar problems will also arise in connection with programs funded under "Model Cities" legislation.[1]

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[1] Data from the survey appear in U. S. Department of Labor, Sub-Employment in the Slums of Philadelphia, Washington: U. S. Department of Labor, 1967. Discussion of the Concentrated Employment Program may be found in U. S. Department of Labor, Manpower Report of the President, 1968, Washington: Government Printing Office, 1968, pp. 195-196.

Neighborhoods in the Poverty Area

As urban manpower and other programs continue to evolve in form, poverty areas of the size of the "North City" will probably be subdivided into more manageable districts corresponding to neighborhoods whose residents share common interests in facilities (such as schools and shopping centers), activities and problems. Such areas, however, will not be easy to define in the "North City" because of the state of neighborhood flux produced in the last few years by urban renewal and by other forces contributing to population mobility and economic and social change. Yet there is much evidence --even within the past year--of the development of community organizations, leadership and activities in several of the "North City's" sections. In the event that community organization is followed by increased community control of government services programs, the implications for the redrawing of agency administrative districts--and, therefore, for the definition of apposite statistical areas--would be obvious.

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[1] The November, 1966, survey estimated the population of the Concentrated Employment Program area at 100,000 persons. Estimates of the "Model Cities" area population are somewhat in excess of 200,000. And the most conservative estimate of the number of persons residing in the "North City" as here defined would exceed 300,000.

THE PROSPECTS FOR FLEXIBILITY IN AREA DEFINITIONS

Philadelphia is among the several major cities whose public agencies have been experimenting with the coding of street names and address numbers to designate the geographic locations of addresses within blocks and census tracts.[1] The significance of this development of address coding guides, as they are called, becomes apparent when one observes that with the use of such codes it has been possible in a computerized operation to translate data from school records on the nearly 300,000 individual students in Philadelphia's public school system into tabulations of totals by year of age, sex and race according to areas of residence. The computer data processing routines here used would presumably work just as well for any individual listings of data with adequate identification of residential address; and tabulations would thereby be possible for any geographic area whose address listings could be identified from the address coding guide.[1]

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[1] See the discussions in the second volume of this report, pp. 28-30 and 125-126. It should be noted also that postal zip code numbers constitute a crude form of address coding. However, neither the "North City" nor its "Model Cities" nor its Concentrated Employment Program areas may be defined in terms of zip code districts.

STANDARD INTRA-URBAN STATISTICAL AREAS

The feasibility of tabulating data on the basis of individual addresses does not obviate the need for definition of standard intra-urban statistical areas, however. Even if a statistical agency such as the Bureau of the Census is willing to make special area tabulations available for the cost of processing the data, it seems an unjustifiable expense for each agency to procure its particular data needs for its own unique groups of jurisdictional districts. There are simply too many such districts in existence; and there are no strong arguments that can be brought to bear against a gradual reconciliation of most of their boundaries so as to provide some suitable set of common geographic units.

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[1] The U. S. Bureau of the Census is planning large-scale use of address coding for data from the 1970 Census of Population and Housing. It appears likely that summaries of 1970 Census data could be compiled for any desired "North City" subdivision

The issue of area reconciliation becomes the more important when a multi-purpose information system is considered. If current agency data were to be used as a basis for estimates of area population characteristics (as unemployment claims data are now, indeed, used in the construction of estimates of total unemployment), the costs alone of producing such estimates would dictate making them available only for a relatively limited group of areas. Similar arguments would restrict any other forms of statistical product from the system.

It seems most reasonable that the city of Philadelphia should be subdivided for statistical and many other administrative purposes into perhaps ten major geographic units--possibly along the lines of the present health districts, for which annual tabulations of vital statistics and estimates of population are already regularly made. These areas, in turn, should be divided as necessary into smaller ones for the administration of the full range of government services, such as schools, law enforcement, manpower and welfare services, city planning and the many others. With respect to the mechanics of establishing the appropriate intra-urban statistical areas, the need is obvious for a local organization whose responsibilities and activities in the determination of definitional criteria and boundaries would be commensurate with those of the federal Committee on Standard Metropolitan Statistical Areas. Equally obvious should be the fact that the reconciliation of agency jurisdictional areas with the statistical ones thus defined would not be an easy task, but one absolutely essential for the development of appropriate managerial statistics and for the realization of their potential contributions to more effective program management.

CHAPTER 3

DATA REQUIREMENTS FOR PROGRAM PLANNING AND MANAGEMENT

Perhaps the most remarkable aspect of the current demands for manpower information is the fact that everywhere in the nation almost all programs for the alleviation of urban problems are calling urgently for the same kinds of data--data necessary in analyses concerned, not simply with manpower activities themselves, but with many others as well, ranging from the design of urban transportation systems to the projection of needs for educational facilities.

That the need for manpower information should be so ubiquitous and that the data should have so many different uses is explained by the variety of categories of information provided in such data. For example, employment totals shown by occupation or industry of employment and by place of work reflect levels, kinds and locations of economic activity as well as magnitudes of employment. The same data, if totalled by areas of residence of the employed rather than by their place of work, are indicators of the utilization of these areas' labor supply and of potential employment problems (e.g., the 1960 Census showed proportions of the total employed who were classified as unskilled laborers two to three times as high for many "North City" census tracts as for the metropolitan area as a whole, and this at a time when the area demand for unskilled labor was declining). These data on employment additionally reflect the income-earning potential of the population and, in the absence of current data on incomes, have uses extending even to the marketing research of private firms in investigations of the local demand for their products and services.

Still other totals may represent the various characteristics of individuals not employed but potentially employable or of those working less than full-time who wish full-time work. Such totals can provide indicators of the extent of the underutilization of a given area's labor supply.

All such data on area manpower, its skills, levels of education, training and experience, its abilities and disabilities, along with data on the nature and location of available jobs, constitute the "raw materials" essential to the improved understanding both of the manpower aspects of the urban economic and social environment in general and of particular areas' specific problems and potentials--an understanding prerequisite to more effective management of manpower programs and to many other forms of public and private enterprise as well.

THE FUNCTIONS OF INFORMATION IN MANPOWER PROGRAM MANAGEMENT

Valid information is an essential ingredient of every decision at every stage in the development and implementation of any program: in the initial formulations of policy and determinations of goals and objectives; during the process of program design and the concomitant activities of planning, budgeting and allocation of funds, personnel and other resources; in the day-to-day administration of program operations; in review, analysis and evaluation of operational achievements and failures; and in the continuing revisions of objectives, programs and budgets that are the necessary consequence of evaluations and of changing external circumstances. Within this management process, the needs for data are, perhaps, most critical in the phases of resource allocation and of evaluation of program results vis-a-vis goals and objectives--phases in which answers are required to such questions as: What services are necessary? In what magnitudes? With what priorities? What have been the results of the services offered? Have their benefits justified their costs? Could these benefits have been obtained more economically?

In some instances the very existence of a program may rest upon the previous existence of data. As an illustration: it was in large part the statistical evidence of great disparities between white and nonwhite unemployment rates and income levels that convinced the public and the Congress of the absolute necessity for the creation of government-supported manpower and other urban programs. The enabling legislation for such programs (or the government directives which implement it) may, in turn, set explicit requirements for the submission of plans and, later, of program evaluations as conditions for grants of funds to local agencies. That such plans and evaluations presuppose the existence and availability of statistical information is well illustrated by the text of a Department of

Housing and Urban Development directive on "Model Cities" planning requirements from which the following excerpts are quoted:

> Cities should examine the educational, health, employment, income, housing, environmental, and other problems of the residents of the Model Neighborhood, should consider in what ways these problems are influenced or caused by the actions and attitudes of residents of the wider community and should develop an effective program to deal with these factors...
>
> The description of problems should include quantitative assessments or measures of their severity. Measures should be selected which will facilitate the design of projects and activities designed to deal with the problem and which can be used to establish quantified long-range goals and five year and annual objectives against which program progress and impact can be measured...
>
> While the city's overall program goals should be broadly stated, they should also be broken down, as much as possible, into measurable components, which relate directly to the city's problem analysis and problem measurement. An employment goal, for example, might be defined not only in terms of overall employment levels but should also deal with problems of persons with part-time or casual employment who are willing and able to work full time, and of persons who are not counted in usual unemployment statistics because they are discouraged from entering the employment market...
>
> Continuing analysis of the relative costs and benefits of various alternative solutions to problems should be carried on. Although cost-benefit analysis in some functional areas represents a precise technical methodology, precise costs and benefits cannot be determined in all program spheres, particularly during

> the early program phases. Therefore, rigorous cost-benefit analysis is not expected where appropriate data cannot be obtained or where the nature of the problem defies measurement. However, procedures should be developed for evaluating program decisions in a systematic manner even where costs and benefits cannot be translated into dollars or other quantitative measures...[1]

Such demands for detailed information concerning a city's population and its problems must be nothing less than appalling to a planner whose principal, if not only, data source for many of the requirements is necessarily the 1960 Census. The absence of the data can hardly support any argument that they are irrelevant to planning and management. Rather, it is evident that program decisions are now being made largely on the basis of intuitive judgments which may, indeed, be entirely valid, but whose validity remains seriously suspect in the absence of supporting evidence.

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[1] U. S. Department of Housing and Urban Development, Model Cities Administration, CDA Letter No. 1, October 30, 1967.

CATEGORIES OF DATA REQUIREMENTS

The information requirements for manpower programs may, in general, be classified into two basic categories: population and job data reflecting the economic, social and physical aspects of manpower development and utilization; and program data concerned with persons served, the nature of the services rendered, their costs and their benefits insofar as these last are measurable. Both categories are vital to program planning and management, and both present major problems of data specification, measurement, compilation and analysis whose dimensions and solutions have, thus far, been barely considered at the local level.

It is not difficult to present a list of specific desirable items of data. In fact, for the category of population and job data, well tested models exist in the form of the items produced monthly by the Current Population Survey for the nation as a whole (and recently for aggregates of urban poverty areas and a few large cities) and decennially by the Censuses of Population for smaller areas. The beginnings of such a list may be seen in Table I, where just a few of the types of data regularly available from the Survey have been indicated.

TABLE I

ILLUSTRATIVE TYPES OF MONTHLY DATA FURNISHED BY THE CURRENT POPULATION SURVEY*

Labor force totals by age group and sex for whites and nonwhites

Unemployed persons by age group, marital status, and sex for whites and nonwhites

Unemployed persons by occupation of last job and sex

Unemployed persons by reason of unemployment, age group, sex, white and nonwhite

Unemployed persons by reason of unemployment, duration of unemployment, sex and age

Unemployed persons by duration of unemployment, age group, sex, marital status, white and nonwhite

Unemployed persons by duration, occupation, and industry of last job

Employed persons by major occupation group, sex, white and nonwhite

Employed persons by occupation group, age and sex

Employed persons with a job but not at work by reason, pay status and sex

Persons at work by type of industry and hours of work

Persons at work part-time by reason for working part-time

Persons at work by full- or part-time status, age group, sex, marital status, white and nonwhite

Persons at work by occupation, full- or part-time status and sex

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* Tables with these and other items of data may be found in *Employment and Earnings*, a monthly publication of the U. S. Department of Labor, Bureau of Labor Statistics.

Area Economic and Social Indicators

Statistics produced by the Current Population Survey (along with other familiar estimates such as Gross National Product) have for years played a significant role in economic planning and policy decisions as indicators of the current status of the economy. And recently there has been an increasing demand for the development of similar statistical indicators of the performance of society as a whole rather than just its component of economic activity. Both types of indicators would indeed be useful as quantifications of the severity of problems in the poverty areas. The value, as well as the limitations, of such measures in the identification of the geographic boundaries of poverty areas has already been discussed. But these measures obviously offer the additional possibilities of showing the relative severity of conditions among areas and, over time, whether circumstances are improving or becoming worse.

At the metropolitan area level, estimates of employment and earnings in various industry categories and of total unemployment have long been provided by the State Employment Service and have been generally useful for the purposes here discussed.[1] Yet the statistical methods for producing these large-area estimates have not proved adaptable to the much smaller poverty areas. And the special November, 1966, survey which showed a North Philadelphia unemployment rate nearly three times that of the overall metropolitan area provided conclusive evidence of the need for separate measures for the poverty area.

It would be naive to suggest the immediate development of a lengthy list of poverty-area indicators when none currently exist for an area such as the "North City." Even a single, up-to-date estimate of the number of unemployed among the area's 300,000 residents would be gratifying to the local manpower analysts. But it does seem clear, from such planning requirements as those specified in the Model Cities directive earlier cited, that the time is now at hand for the beginning of a poverty area data system.

The critical set of poverty area indicators of manpower status must necessarily be concerned with the underutilization rather than with the unemployment of human resources. The standard definition of unemployment, with its classification criterion of the physical act of looking for work, is far less valid as a measure of manpower problems in the urban slums than it is for regions of relative affluence. In an attempt to quantify the nature and extent of other aspects of underutilization, the November, 1966, survey of urban unemployment experimented with a concept of "sub-employment," which included not only those unemployed in the sense that they were "actively looking for work and unable to find it" but in addition those working only part-time while seeking full-time work, those heads of households under 65 years of age who earn less than $60 a week working full-time, those individuals under 65 who are not heads of households and earn less than $56 per week in full-time jobs, half of the number otherwise not working in the male age group between 20 and 64, and a "carefully considered estimate of the male 'undercount' group" (i.e., those males whose presence in the area must have been missed during the conduct of the survey).[1]

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[1] See, for example, the monthly Philadelphia Area Labor Market Letter, published by the Pennsylvania State Employment Service, containing both an analysis of employment conditions and tables of data for the eight-county area.

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[1] U. S. Department of Labor, A Sharper Look at Unemployment in U. S. Cities and Slums, Washington, D. C., 1967.

For the Philadelphia survey area, the ratio of the total "sub-employed" to the total labor force--the latter embracing the remaining employed persons as well as these categories--was a startling 34 percent! While the accuracy of the survey's results may not have been all that was desirable, it left no doubts as to the needs for detailed measures of manpower underutilization.[1]

In addition to such measures of current status as unemployment, consideration ought to be given to the fact that the data reflect status as of a given point in time. Actually, there appears to be a considerable number of persons listed by surveys as nonparticipants in the labor force who have worked in the recent past or who intend to look for work in the near future. Many of these individuals would be included in a measure such as "sub-employment;" but separate measures of the changes in status would be more desirable, since it is the total of persons needing manpower services during a given period, and not the total at any one instant of time, that is the true indicator of the demand for manpower programs.

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[1] For additional discussion of the problem of manpower underutilization, see: Harold Goldstein, "On Aspects of Underutilization of Human Resources," Proceedings of the Social Statistics Section, 1967, American Statistical Association, Washington, American Statistical Association, 1968, pp. 115-121.

Data for Area Manpower Analyses

The critical importance of statistical indicators in an urban information system is not diminished by the fact that they are, as their name suggests, only measures of the nature and severity of urban problems. They remain essential ingredients in, but not substitutes for, analyses which lead to better understanding of urban conditions and better implementation of manpower programs.

No information system, however complex it may be, is likely to satisfy all the demands for data in labor market research. There seems no end to the questions that can be asked or to the relationships between market factors that deserve exploration. But, as has been demonstrated in the case of the national data available from the monthly Current Population Survey, the information obtained for use in constructing statistical indicators may also have major value in manpower research. To cite but one instance of the dearth of information on the nature of the urban labor market and its functioning, almost nothing is known of the location of employment opportunities for the "North City's" work force. Data from the 1960 Census permit identification of commuting-to-work patterns only between the city of Philadelphia and its surrounding counties. And while the 1970 Census is scheduled to include a question on street address of place of work, cross-tabulations of this information with residence data will be possible only if funds are made available for coding of both addresses. Until such data can be produced, only speculation is possible about the difficulties faced by "North City" residents in obtaining access to jobs elsewhere in the labor market area.

Such investigation, were it undertaken, might be considered by some as mere research for research's sake. Yet research of this kind is fundamental to the design of adequate programs fully relevant to the manpower problems they are intended to relieve.

Data on Manpower Programs and Services

While past experience in labor market research has revealed many kinds of needed and currently unavailable information on the populations and jobs in small areas, no similar body of experience exists to suggest appropriate data to be collected for the study of program activities and services. Many of the programs now in operation in urban poverty areas are the result of the unprecedented volume of human resource and manpower legislation of the last half-dozen years. The requirements for sudden innovation in meeting the critical needs of the residents of urban poverty areas have produced a multiplicity of programs (often with considerable duplication of services) offered by agencies whose legislative mandates, communication channels and financial sources vary widely. In the bewildering proliferation of local activity, the crucial data most urgently needed are those which can afford better planning and coordination of services and which can thus begin to close the breach between program objectives and their fulfillment.

The organizational structure within which planning and coordination must take place is only beginning to become apparent in such multiple-agency activities as the local planning committee of the Cooperative Area Manpower Planning System (CAMPS) and the "North City's" Concentrated Employment Program. Even within individual agencies, there is evidence of much greater emphasis on coordination and on better management of the competing programs, as, for example, in the requirement for an annual local "plan of action" by the public employment service which must consider those services, resources and facilities available from other agencies as well as those of its own local offices.

The solution to the information problems posed by the needs for coordination and for more effective management of local manpower service systems lies in the integration of data on the characteristics of the populations and jobs in the areas served and on the kinds and quantities of needed services and available resources. Data on program experience and performance are obviously critical in this connection. But the exact form in which all these data must be rendered for use and the means for their integration with the standard types of population and job information must be the subject of much serious experimentation and improvisation. There are, unfortunately, no tested prototypes for the necessary statistical system.

It is clear that the traditional agency data acquired for purposes of financial accounting and reporting of volume of individual types of transactions (e.g., numbers of placements) are inadequate for the present purposes. It appears particularly necessary that the agencies' basic operating records be redesigned to yield more information than simply workloads and staff performance: information on the characteristics of the persons served, on the nature of their manpower problems, and on the extent to which the available services can provide for the resolution of these problems.

As a preliminary effort in the development of suitable program data, the characteristics of persons receiving welfare payments, unemployment compensation or other types of services involving substantial numbers of individuals could be made available by areas of residence. This could be accomplished with relative ease and would provide useful indicators of poverty problems, especially if data could also be obtained on the extent to which items such as insured unemployment understate the total number of unemployed. The data on the various types of services are necessarily as diverse as the services themselves and the resources that provide them. Where such data now exist, they vary in nature according to individual agencies' requirements for accounting, budgeting and reporting. To the extent that joint planning and coordinated offerings of services become mandatory in Model Cities and other similar multiple-agency programs, such data will at least require consistent definitions and uniform procedures for statistical standardization.

Data for Program Evaluation

Neither the statistical indicators thus far discussed nor such program data as numbers of counseling interviews or job placements can make any substantial contribution to the evaluation of manpower programs. In the case of the indicators, a particular measure (such as, for example, unemployment) may rise or fall quite independently of program efforts; and, from observing changes in the values of a particular measure, there is no way to be sure of the factors responsible for the changes, let alone of the magnitudes of the contribution to them of the individual factors.

Program data on services and on the persons served suffer from the defect that they pertain only to the period of the clients' involvements with the agency, whereas the benefits from the services received may not be observable until long afterward. Here, too, there are problems of multiple causation; for not only may an individual receive help from more than one agency, but factors other than the services he receives may contribute to any improvement in status he subsequently achieves.

Finally, the methodology of cost-benefit analysis, and of program evaluation in general, is by no means developed to a state that permits specification of any one set of data to be routinely collected as a basis for local evaluations of programs. Instead, in the short run at least, the need appears to be for pilot studies of the alternative approaches to the evaluation process. Several types of data are, however, vitally necessary for such pilot studies. There must be some means of determining the degree to which any sample of persons whose experience is to be studied represents that larger group about which inferences are to be drawn. The implications are for better measures of the characteristics of the total populations served. There must be procedures for identifying the various programs in which an individual may participate and their respective services to him--a requirement which calls for the pooling of data from separate programs and agencies. And there must be a means to trace through time the activities of persons in the pilot group as they change their residences and jobs. This last is, in practice, the most difficult problem of all. Its solution--if there is one--may depend on work experience information from a nationally centralized data resource, such as that of the Social Security Administration.

Data for Long Range Planning

The present sense of crisis that is so often expressed in discussions of urban manpower problems--in this instance, of the need for urban manpower data--is the result of the fact that manpower problems and the data requirements on which their solutions might depend have been neglected for so long. Of course, there was no intention for the government to become so heavily involved in these problems at the time that many of the existing programs were organized (e.g., the public employment service); and such government involvement in itself is as recent as the new crisis. Both have come about partly because no one in the past saw it as necessary to speculate as to what the problems might be or as to how serious they might become. No one was fully aware, for example, of the extent of the migration from the rural to the urban areas; and it occurred to very few that the migrants were completely unsuited for entry into the urban labor market. In the absence of data, no one even guessed the multiplicity, complexity and magnitude of the problems that were developing. Now that the nation is confronted with these problems in their critical states, government programs have had to be instituted to deal with their solutions; and more may become necessary, especially in order to create a means for that perception which can forecast with reasonable accuracy the problems that may develop in the future. Until now, in the absence of knowledge of how conditions could or would change, decisions have unconsciously been made on the basis of the invalid assumption that they had not, and would not, change.

It is clear that statistical means must be made available for the recognition and anticipation of emerging problem situations relative to urban manpower. Planning today is necessary, for example, for programs in vocational education that will provide, to the extent possible, the skills that will be necessary tomorrow. Labor surplus problems that may arise, perhaps, as the needs for unskilled labor further diminish must be anticipated. The industrial structure that a given area is going to have in the future must be predictable, as well as the kinds of demand for labor that that changing structure is going to produce. Foremost among the particular data requirements for making such forecasts are consistent measurements of the characteristics of an area's population and industry at sufficiently regular and frequent intervals (perhaps annually) as to permit the gradual development of a statistical picture of continually evolving urban manpower trends.[1]

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[1] Discussion of the specific data requirements of particular forecasting methods seems inappropriate at this point, since none of them have been sufficiently tested to justify the superiority of any one approach. Such testing must await the provision of substantial quantities of data over lengthy periods of time.

A HIGH-PRIORITY SET OF MULTI-PURPOSE DATA

Essential for the development of an urban manpower information system based on the pooling of data from such diverse sources as censuses, surveys and agency administrative records is the agreement among the statistics-producing agencies on the nature of the items to be collected, the frequency and timing of their collection, the definitions to be used in measurement and classification of the data, and the general standardization of statistical technology. While the many elements on which such agreement must be reached are far too complex for detailed discussion here, the investigations of this research project into the types of data which these agencies collect showed a surprising uniformity among their requirements for information on the individuals they serve. It seemed desirable to consolidate a list of items most frequently requested. The resulting list appears in Table II. Its items, were they to become available on a current and consistent basis for a substantial part of any poverty-area population, would constitute a statistical achievement of major proportions.

TABLE II

LIST OF HIGH-PRIORITY DATA ON INDIVIDUAL PERSONS*

Data for Individual and Family Identification and Area Classification:

1. Full name
2. Address (area code will suffice if records can be uniformly coded)
3. Social Security number (in the absence of which, name, address and birth date may be substituted in the matching of different records on the same individual)
4. Name of head of household (or alternative characteristic to permit aggregation of household data)

Social Characteristics:

5. Birth date (month, year)
6. Sex
7. Race (to include Spanish-speaking origin)
8. Highest year of school completed
9. Place of birth
10. Year of move to metropolitan area of current residence
11. Marital status
12. Health or disability status
    a. Temporary or permanent disability
    b. Potentiality for employment

Employment Status:

13. Employed
    a. 35 or more hours per week (full time)
    b. Under 35 hours per week (part time)
        (1) Voluntary
        (2) Involuntary
    c. Name of firm or employer
    d. Address of firm or employer
    e. Similar data if more than one regular job

TABLE II

LIST OF HIGH-PRIORITY DATA ON INDIVIDUAL PERSONS (CONTINUED)

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14. Unemployed (looking for work)
    - a. Duration of unemployment
    - b. Name of previous employer (if any)
    - c. Address of previous employer (if any)
    - d. Reason for unemployment
        - (1) Lost last job
        - (2) Left last job
        - (3) Never worked before
        - (4) Reentered labor force
15. Not in labor force, by reason
    - a. In school
    - b. Under school age
    - c. Ill or disabled
    - d. Keeping house
    - e. Retired
    - f. No jobs available
    - g. Other
16. Occupation (job title or occupational code)
    - a. Primary occupation
    - b. Current occupation, if different from above
    - c. Occupation five years ago

Income:

17. Estimated personal income last year
18. Estimated family (or household) income last year
19. Status as primary or secondary wage earner in family
20. Sources of income
    - a. Employment
    - b. Welfare
    - c. Disability allowance
    - d. Retirement pension
    - e. Unemployment compensation
    - f. Other

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* The items on this list are those most frequently requested by the agencies whose records are the subject of the second volume of this report.

CHAPTER 4

THE AVAILABLE DATA: THEIR NATURE AND LIMITATIONS

There are three primary sources for the data currently available to the investigator of urban manpower problems. The first is the family or household itself, which provides information decennially for the censuses of population (and sometimes oftener for special surveys) and which is the origin of most small-area statistics by residence. The second is the employer who contributes employment data by place of work (usually as revealed in payroll records) to the censuses of industry and other periodic surveys. The third is the body of administrative records and reports of government activities which offers statistics either by clients' places of work or areas of residence.

Naturally, data from each source present particular advantages and disadvantages. For example, only those data that are derived from a canvass of households, either in a complete census or in a properly designed sample survey, provide coverage of the entire population, including domestic help, the self-employed, persons not in the labor force but available for work under special circumstances, and all such categories of individuals who cannot be included in employer reports. In addition, only data derived from households regularly offer detail on subjects such as education, race, marital status and other characteristics not ordinarily available from payroll records, the information from which is essentially on jobs rather than on persons. This principal defect of payroll records as a source of population data also causes the multiple jobholder to be counted more than once.

On the other hand, personal recollection of hours worked, wage and salary information and the like cannot form the basis of data as reliable as those gathered from payroll records. Both payroll data and statistics from government agencies' administrative records offer the considerable advantages of low costs and frequency of provision, since they need only be tabulated from information already contained in existing records. However, in order that data from these sources may be generally useful in a poverty area information system, two basic conditions must be met. First, the information on specific individuals must be susceptible to classification by area of residence. Second, there must be a means of identifying the representativeness of such data--the extent, that is, to which the data reflect the characteristics of the area population as a whole. It seems unlikely that the area classification problem can be resolved for payroll data without placing an intolerable burden upon employers already chafing at the quantity of paper work required by government. For this reason, the principal potential sources of the required additional manpower data are limited to household surveys and to the records and reports of major government agencies.

CRITERIA FOR THE EVALUATION OF URBAN DATA AND DATA SOURCES

Any assessment of the adequacy of population statistics must be based upon ideal criteria which may never, perhaps, be fully achieved and which, at times, might even be inimical to the uses of the data and to the overall goals of the data system. Ideal detail, for example, conflicts with requirements for ideal data currency; for, the more the detailed information sought, the longer the time required to tabulate and publish it and the greater the certainty that many (if not all) of the items requested will be obsolete when they are, at last, available. Furthermore, ideal accuracy in measuring concepts as complex as employment or unemployment is to be approached only at the increasing expense of fine area and classification detail; since, as estimates grow smaller in magnitude, relative error usually grows larger. Finally, ideal comparability of data over time is entirely antithetical to the occasionally necessary changes in statistical concepts and procedures.[1] No evaluation of data, therefore, can simply question in isolation such qualities as detail, timeliness, accuracy or consistency. Rather it must investigate the adequacy of the compromise that has been achieved in a particular set of data between these competing and somewhat inconsistent qualities, the degree of ideality achieved with respect to each criterion without detracting from the others. Only on the basis of criteria so determined can valid judgments be reached on the extent to which data satisfy the requirements of their varying uses in analysis and decision making.

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[1] Other constraints that apply to the development of ideal economic and social data are the political, institutional and technological feasibility of proposed improvements, their desirability relative to costs, and the limited availability of statistical facilities and experienced personnel.

The criteria for the evaluation of population statistics would apply equally well to almost any type of data for any geographic area, large or small. But they will not necessarily permit any immediate, definitive judgment as to the relative merits of alternative sources of the currently needed and unavailable poverty-area data. The reason is simply that most of the existing knowledge regarding the potential of the different sources for producing data of suitable comprehensiveness and detail, currency and frequency of provision, accuracy and reliability is based on experience gained from working with the middle class majority of the nation's population, and not on experience in the urban slums. One is forced to question, not just whether the available statistics and statistical precedents are adequate in their historical context, but also whether they are relevant to the circumstances encountered in an environment so radically different from that for which the statistical techniques were designed.

It is, indeed, an unhappy fact of the present statistical situation that most of the procedures created to elicit population data employ basic concepts and measurement approaches more suitable for the middle-class residents of suburbs than for the racial minority groups of the cities. Census procedures, for example, in equating the household with the family and in assuming that one person is naturally the head of the household, must necessarily ignore the multiple-family or mixed groups that often communally share a household in a city. This is just one of many instances in which the minority groups in the population have been slighted in the past in order to obtain optimal data on the majority. At present, however, it is precisely these slighted minority groups which have been given highest priority for manpower service programs: the hard-core unemployed and those handicapped by their lack of education and skills. It is for them that the data are absolutely critical in order that the planning and management of those programs may be viable.

Traditional definitions and concepts (as earlier noted in observing the disparity between the rate of unemployment and the rate of "sub-employment" in the "North City") and traditional methods of data collection and analysis are highly suspect when applied to the minority groups in urban poverty areas. Not even the face-to-face interview, whether in a household survey or in a manpower agency office, can be considered a guarantee of accuracy for the information obtained. There are communications barriers to be overcome, as well as the suspicion and hostility so unfortunately and understandably characteristic of many slum residents. It is even likely that the conventionally trained statistician, with his orderly, logical and rational approach to his discipline, may be so insulated from the seemingly (to him) irrational behavior and disorderly activities and conditions in the urban labor markets and poverty areas as to fail to recognize the effects of these circumstances on the data he seeks to obtain. Whatever the case, it is essential that prejudices in favor of the customary modes of statistical operations be overcome if any full and equitable evaluation is to be made of the alternatives for the development of the needed poverty-area data.

DATA FROM CENSUSES AND SURVEYS

Neither the nature nor the limitations of the massive quantities of data produced by population censuses and surveys can be fully appreciated without a careful study of the data themselves and the procedures by which they were obtained. The single published volume of 1960 census tract statistics for Philadelphia contains something of the order of half a million entries of totals and percentages in its 457 pages of tables.[1] And the quantity of details on population characteristics in these tables is only a fraction of that published for larger areas, such as the Philadelphia standard metropolitan statistical area as a whole or its component counties.[2] Correct interpretations of the meaning of the published figures depend on the extent of one's understanding of census methods, as, for instance, the nature of the questions asked, the definitions of the classification criteria, and the possibilities for statistical errors.[3]

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[1] U. S. Bureau of the Census, U. S. Censuses of Population and Housing: 1960, Census Tracts, Final Report PHC(1)-116, Washington: Government Printing Office, 1962.

[2] See, for example, U. S. Bureau of the Census, U. S. Census of Population: 1960, Detailed Characteristics, Pennsylvania, Final Report PC(1)-40D, Washington: Government Printing Office, 1962.

[3] Each census report contains an introductory section on the nature and limitations of its data. 1960 Census procedures are more amply discussed in U. S. Bureau of the Census, 1960 Censuses of Population and Housing: Procedural History, Washington: Government Printing Office, 1966.

Whatever the limitations of the decennial population censuses, those of the data from special household surveys have been generally the same. However, such data are rarely available for individual urban areas. Indeed, for Philadelphia's "North City," only one set of published results exist for the period since the 1960 Census.[1]

Problems of Obsolescence

The time references of 1960 Census data were dependent upon the nature of the information to be recorded on the individual questionnaires. For example, employment status was determined for the week immediately preceding the enumeration. There was a question on the total number of weeks during 1959 in which a person worked; and income was recorded for the entire year of 1959. Age was represented by month and year of birth and was tabulated on the basis of completed years as of April 1, 1960; and most other data were reported as of approximately the same date. Obviously, some of the totals derived from such information were almost immediately obsolete because of such influences as seasonal changes in the factors affecting economic activity. This fact does not lessen in any way the importance of the data for purposes of historical analysis. Their publication a year or more after the time period they represented made them primarily descriptions of the past to be compared among areas as indicators of relative status then prevailing and to be studied, together with 1950 Census data and those forthcoming in 1970, in the hope of observing trends.

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[1] These data, from the November, 1966, survey, conducted in the Concentrated Employment Program area in Philadelphia by the U. S. Department of Labor and the Pennsylvania Bureau of Employment Security, appear in: U. S. Department of Labor, Sub-Employment in the Slums of Philadelphia, Washington: U. S. Department of Labor, 1967. The relatively small sample of households interviewed precluded estimates of detailed population characteristics.

In the absence of current data, measurement of the extent of the obsolescence of the 1960 Census data is impossible. Seasonal fluctuations may be observed in the monthly employment and unemployment data provided for the eight-county metropolitan area by the Pennsylvania Bureau of Employment Security; but the patterns of such fluctuations are not necessarily applicable to the particular employment and unemployment totals of the "North City." Moreover, while there is no doubt that urban renewal and other factors have produced major changes in the areas of residence of Philadelphia's population, one can only speculate about the impact of these population shifts as they may be reflected in the changing levels of income and other characteristics of the "North City's" present residents.

Response Error and Sampling Variability

It is often and validly asserted that United States government statistics are among the best available to any nation. Yet independent groups, such as the Gordon Committee,[1] have investigated the adequacy of government statistical programs and have agreed that there are also significant deficiencies and omissions in the data provided by current information systems. Such criticism becomes greatly magnified when attention is turned from national aggregate totals to their small-area components in which error may become a serious problem, since there is less opportunity for its elimination by "offsetting" in the summation process.

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[1] The Gordon Committee, as it was popularly called, was officially known as the President's Committee to Appraise Employment and Unemployment Statistics. Its report, Measuring Employment and Unemployment (Washington: Government Printing Office, 1962) should be required reading for anyone interested in manpower data.

A principal category of errors in census and survey statistics arises from such sources as response and sampling variation. Errors in the responses of individuals, springing from such factors as misinterpretation of the meaning of a question, should tend to offset each other as the figures are totalled if the questions are properly designed and if there is nothing of a procedural nature to predispose persons toward a particular error. Response error is, therefore, usually minimal in totals for large areas and for broad classifications of population characteristics. Sampling error (or the sampling variability of estimates) displays a similar tendency. This type of error, which arises because no sample is ever a perfect representation of the population from which it is taken, will, on the average, become smaller relative to the total being estimated as the size of the sample increases. It is sometimes forgotten that in the 1960 Census all of the economic and most of the social data were obtained from a sample of twenty-five percent of the nation's households.[1]

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[1] In the 1960 Census of Population, only five items of data were asked of all persons in all parts of the country. These were: relationship to head of household, age, sex, color or race, and marital status.

At the census tract level it is entirely possible that response and sampling errors may render comparisons of certain items of data meaningless. The data in Table III, for four adjoining tracts in the heart of the "North City," are illustrations of the problem. Sampling and response errors may have been partly the cause of much of the variation in the income, education and employment status data; and, indeed, in the cases of the male unemployment totals and unemployment rates, the differences that appear between census tracts could be entirely due to them.[1] It is also true that if the male unemployment totals were to be aggregated with the corresponding figures for the remainder of the "North City's" census tracts, understatements of unemployment in some tracts would cancel out overstatements in others. While the final "North City" unemployment total might still, however, contain some error, the contribution to it from response and sampling variability would probably be minimal.

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[1] While these four tracts are probably among the city's worst with respect to the cited statistical indicators, the incautious use of such data for rankings of problem severity must be avoided. Procedures for estimating the impact of sampling error on Census estimates appear in each volume of Census statistics. Also see U. S. Bureau of the Census, 1960 Censuses of Population and Housing: Procedural History, Washington: Government Printing Office, 1966, pp. 113-114 and 127-128.

TABLE III

SELECTED CENSUS TRACT DATA FROM THE 1960 CENSUS OF POPULATION, PHILADELPHIA, PENNSYLVANIA*

CLASSIFICATION	CENSUS TRACT			
	32C	32D	47A	47B
Total Population	11,541	16,833	8,733	4,264
Percent Nonwhite	97	99	96	99
Median Family Income	$3,611	$3,376	$3,190	$3,432
Median School Years Completed Age 25 and Over	8.8	8.6	8.6	8.2
Male Civilian Labor Force	2,724	3,542	2,159	1,038
Male Unemployed	378	427	331	206
Male Unemployment Rate	13.9%	12.1%	15.3%	19.8%

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* Source: U. S. Bureau of the Census, U. S. Censuses of Population and Housing: 1960, Census Tracts, Final Report PHC(1)-116, Washington: Government Printing Office, 1962.

The Nature and Effects of Undercounting

Errors in census and survey statistics are frequently categorized into two types, depending on whether they tend to average out or to remain constant as the individual observations are aggregated.[1] In the former category are such sources of error as the response and sampling variation just discussed. In the latter are possible biases of considerable significance, such as the problem of undercounting arising from the fact that censuses and surveys have a greater tendency to miss persons in some groups of the population than in others and, hence, to under-represent their characteristics to varying degrees.

According to the estimates of the Bureau of the Census, approximately three percent of the population of the United States was not counted in the 1960 Census.[2]

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[1] The dichotomy is between experimental error and systematic error; i.e., between random error variation and statistical bias. For a more detailed discussion see: U. S. Bureau of the Census, 1960 Censuses of Population and Housing: Procedural History, Washington: Government Printing Office, 1966.

[2] The methodology and results of the Census Bureau's principal study of underenumeration in the 1960 Census may be found in Jacob S. Siegel and Melvin Zelnik, "An Evaluation of Coverage in the Census of Population by Techniques of Demographic Analysis and by Composite Methods," Proceedings of the Social Statistics Section, 1966,

This undercount would be of relatively little concern if it applied consistently to all groups of the population in all areas; but such was clearly not the case. Unfortunately, the net understatement for nonwhites was of the order of ten percent and, in the cases of some groups, such as males aged 15 to 29, may have ranged as high as twenty percent. These estimates of the proportion of the population overlooked by the Census were determined principally by analysis of independent data on births, deaths and immigration and by such techniques as comparisons between the ratios of males to females in the various age and race groupings of the Census data and the ratios that would have been expected from the birth-death-immigration data.

The estimates of the undercount thus obtained apply only to the nation as a whole and not to any one sub-area,

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American Statistical Association, Washington: American Statistical Association, 1966, pp. 71-85. This report has been reprinted in David M. Heer, editor, Social Statistics and the City, Cambridge, Mass.: Harvard University Press, 1968, pp. 132-173. The latter publication contains a companion paper on the Census undercount by Jacob S. Siegel, "Completeness of Coverage of the Nonwhite Population in the 1960 Census and Current Estimates, and Some Implications," (pp. 13-54), and other papers on urban data problems which were presented at a conference on June 22-23, 1967, in Washington, D. C., sponsored by the Joint Center for Urban Studies of the Massachusetts Institute of Technology and Harvard University.

such as Philadelphia or its "North City." It is also believed that the undercount was worst in the large urban slums because of their high incidence of poor and uneducated persons and the many deterrents that slum conditions impose on the effective conduct of a census.[1] Were the undercount ratios in the "North City" the same as for the nation, perhaps 25,000 persons from its population would have been unrepresented in the 1960 Census totals. Considering the conditions of the area, the figure must actually be higher.

Once again, only speculation is possible concerning the effects of the undercount on such measures as unemployment rates.[2] Suppose that the 2,714 males aged 14 or over in Philadelphia's Census Tract 47A were, because of the undercount, only three quarters of the true total. If all the 905 who would then have been missed by the Census were neither employed nor unemployed but simply not in the labor force, the unemployment rate would remain unchanged. But if most of the 905 were actually employed, then the rate would be smaller than the 15.3 percent reported (see Table III); and if some 400, say, of the group overlooked were unemployed and another 400 employed, then the "true" unemployment rate would be close to 25 percent.

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[1] L. Pritzker and N. E. Rothwell, "Procedural Difficulties in Taking Past Censuses in Predominantly Negro, Puerto Rican, and Mexican Areas," in D. M. Heer (ed.), Social Statistics and the City, Cambridge, Harvard University Press, 1968.

[2] Analysis of possible effects of the 1960 Census undercount on national manpower estimates appears in D. F. Johnston and J. R. Wetzel, "Effect of the Census Undercount on Labor Force Estimates," Monthly Labor Review, March, 1969 (reprinted as U. S. Department of Labor, Bureau of Labor Statistics, Special Labor Force Report No. 105).

It should be obvious that this type of error, though varying somewhat from one census tract to another, would not necessarily be diminished, as, probably, would response and sampling error, when the figures were aggregated for the entire poverty area.

DATA FROM AGENCY SOURCES

Of the approximately 300,000 residents of the "North City," nearly 60,000 are currently attending Philadelphia's public and parochial schools. About the same number are receiving welfare assistance in various categories ranging from payments for dependent children to aid to the blind and disabled. Thousands more of the area's residents receive unemployment compensation during the year, or employment counseling, or health services. Still others have less pleasant dealings with the city's law enforcement agencies. In every instance, these contacts between the agencies and the individuals they serve produce records containing items of information on personal characteristics--information which often corresponds to that obtained in censuses and surveys. If one were to consolidate all the current information in the many files, including such further sources as city wage tax records, voter registrations and operator's licenses, one might have a reasonably up-to-date equivalent of much of the information recorded in the 1960 Census, and that, possibly, with a less serious problem of undercounting for some groups of the population.

The idea of such a compendium of agency data available annually--or, perhaps, even more frequently--may appear to the experienced statistician as more a chimera than a practical statistical resource. Serious difficulty would be involved in obtaining access to the data. There would be problems of interagency cooperation to resolve inconsistencies in measurement concepts, classifications and other statistical procedures; and there would be additional, equally serious ones of safeguarding the confidentiality of individual records so as to protect personal privacy and to comply with the agencies' own restrictions on data release. But the technology for such data consolidation is at hand, as are analytical procedures for the construction and evaluation of estimates of area population characteristics. In the absence of other economically feasible means for supplying the needed statistics, there seems no choice but to proceed with the experimentation and innovation necessary for the solution of these problems and for the eventual translation of the data from agency records into usable area population and manpower information.

The Nature of Agency Data

The nature of the data in government and private agency records, their many limitations, and the problems involved in translating them into useful statistics on the "North City's" population have been the principal subjects of the second volume of this research report. That these agency files contain massive amounts of manpower information has been amply documented there. So also, unfortunately, has been the fact that almost none of these data are currently tabulated and available for analytical use. Evaluative studies of the accuracy of the agencies' data and their suitability for use in the development of comprehensive estimates of current population characteristics were attempted as part of the research; but the absence of summary measures of the information contained in the individual records and the lack of corresponding information independently derived for use in determinations of the accuracy and representativeness of such summary measures have prevented more than a cursory appraisal of the adequacy of the data described.

The data in Table IV are illustrative both of the kinds of information secured by interviewers in the various agencies and of the disparities among forms in the entries required. Still other items appear on some of the forms listed in the table; and still more information is collected in the many additional forms which these agencies complete for other purposes.[1] Although these forms are designed primarily for operational rather than statistical use, most of the data on them is easily susceptible to aggregation and tabulation. That such tabulations have rarely been made is far more the result of severely limited statistical resources in the local agencies than of the deficiencies in the data themselves.

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[1] Illustrations of thirty-two of the principally relevant forms appear in Volume II of this report, along with discussions of their content and of the procedures by which they are completed and maintained.

TABLE IV

ILLUSTRATIVE ECONOMIC AND SOCIAL CHARACTERISTICS OF THE POPULATION OF PHILADELPHIA AS CONTAINED IN SELECTED AGENCY FORMS*

Item	Public School Admission Application	Employment Service Application	Unemployment Compensation Application	Application for Public Assistance	Public Assistance Employability Data
Name	X	X	X	X	X
Address	X	X	X	X	X
Social Security Number	-	X	X	X	X
Birthdate	X	X	X	X	X
Birthplace	X	-	-	-	-
Sex	X	X	X	X	X
Race	-	-	-	-	-

TABLE IV

ILLUSTRATIVE ECONOMIC AND SOCIAL CHARACTERISTICS OF THE POPULATION OF PHILADELPHIA AS CONTAINED IN SELECTED AGENCY FORMS (CONTINUED)

Item	Public School Admission Application	Employment Service Application	Unemployment Compensation Application	Application for Public Assistance	Public Assistance Employability Data
Marital Status	-	X	-	X	-
Occupation	-	X	X	-	X
Work History	-	X	X	-	X
Education	-	X	-	-	X
Training	-	X	-	-	X
Date of Form	X	X	X	X	X

* Source: Agency forms as illustrated in the second volume of this report, pp. 14, 47, 48, 79, 84 and 86.

Problems of Coverage and Consistency

Agency data, like those of censuses and surveys, also present the problem of undercounting, since their programs are applicable only to parts of the entire population within a given area. Generalizations concerning the magnitude of the problem are impossible, partly because of the unique characteristics of each agency's programs and partly because of the unavailability of any accurate basis for making statements about the extent of program coverage. It is probable, for example, that data on the public and parochial school children in the younger age groups where the "dropping out" problem is at a minimum would provide a completeness of coverage of these age groups even greater than could ever be achieved by a conventional census. Similarly, it appears likely that public assistance data on the lowest income groups of the population might be far superior in their completeness of coverage than any to be obtained by conventional survey procedures, especially when the difficulties are considered in the conduct of surveys among the urban poor. But such speculations are no substitute for a comparison and analysis, census tract by census tract, of the corresponding items of data acquired from the alternative data sources at the same point in time. Indeed, the ultimate in analysis of the comparative adequacy of census data and agency data can only be achieved through such means as the computer matching of the information from both sources--as has been done, for example, in a few special studies by the Bureau of the Census in the course of its own evaluation programs.

However, incomplete population coverage is not necessarily a bar to the usefulness of agency data, as is regularly demonstrated by the availability of the total number of the insured unemployed for the overall metropolitan area. Such totals are valuable economic indicators in their own right, since they reflect area economic conditions, even though they fail to include those not covered by unemployment compensation. They would become even more useful if they were also available for the residents of areas such as the "North City," along with data from other sources which might convey some indication of the magnitude of the numbers of unemployed omitted from program coverage.

Another disconcerting problem of coverage is the occasional absence from agency records of critically needed items of information, such as the item of race which is barred by statute from appearing on many standard forms. Only in the census tracts whose population is predominantly nonwhite would such an omission present no problem. In some instances, however, separate procedures for racial identification of program participants are necessary to meet special reporting requirements, as in the case of the public schools' annual racial survey.

The various problems of coverage in agency data would be considerably lessened if it were to become possible to match the records of several agencies and merge their data --with, of course, appropriate safeguards for the confidentiality of their information. Under such circumstances, the relatively scant information obtained on large population groups, such as licensed drivers, registered voters or persons who pay the Philadelphia wage tax, might be of great value, analytically, in assessing the extent of the population undercoverage of the more detailed service agency data.

Errors and omissions in the data recorded on agency forms are as inevitable as those encountered in censuses and surveys. The same possibilities exist, however, for offsetting of these errors in the aggregation process. There is, in addition, evidence that the agencies' provision of services may offer a quid pro quo for accurate answers during the interviewing process which is superior to any that survey methods could generate. Moreover, in the case of some data, as in the public assistance and unemployment compensation records, legal penalties exist for erroneous statements, along with procedures for independent checking of the accuracy of individual responses.

Mergers of information from several agencies would require the establishment of uniform inter-agency statistical procedures, if consistency were to be ensured in compiling such totals as the numbers of persons in various occupational or other classifications. While uniformity of statistical standards is another ideal, to be approached only gradually and imperfectly, there is ample precedent at the federal government level that efforts in this direction can be successful.

Problems of Tabulation and Statistical Technology

It has been observed that most agency data may be found only in scattered files and that they are not likely to be tabulated or otherwise made accessible without substantial augmentation of the agencies' resources for statistical operations. Since names and addresses are generally available on the individual records, and since the technological means exists for coding of address to indicate city block and tract location, the tabulation of these data by area of residence is perfectly feasible, if not economically possible at present. A similar technological feasibility exists for the merger of information on different records pertaining to the same individual or family. However, the recognition that these operations are possible is not meant to suggest that they can be accomplished without a great deal of experimentation to provide the many detailed refinements of techniques which will undoubtedly become necessary to solve the problems of implementation on a large scale.

The problem of the varying time references of the data in different records is one example of the kind of difficulty which must be resolved through procedural experimentation. The data on agency records are recorded in a continuing process and cannot, therefore, pertain to a common time period, as is possible for census or survey information. The data, once entered in the agency files, remain static, while the individuals concerned move to new addresses, change jobs, acquire or lose dependents, or otherwise invalidate the information that was correct when provided. Even aggregation of the data from the most recently acquired records could result in the adding together of current and obsolescent entries. One solution to the problem lies in empirical studies of samples of such records to determine the average time spans within which significant data obsolescence occurs and establishment thereby of currency restrictions on items to be included in statistical tabulations. Such procedures would, at the same time, establish a time reference period for the data being aggregated.

In evaluating the limitations of agency data such as those here discussed and the many others appearing in the agency-by-agency appraisals contained in the second volume of this report, it is necessary to avoid the extreme reactions either of a completely pessimistic attitude toward the many problems or of a naively optimistic idea that meaningful data might immediately be produced if only a computer could be made available. The valid assessment appears to be that the data, as they now exist, are worth the effort and expenditure of serious experimental attempts to make them accessible and to explore the alternative means for incorporating them into a general multiple-source and multiple-purpose information system.

CHAPTER 5

ELEMENTS IN THE DEVELOPMENT OF AN URBAN MANPOWER INFORMATION SYSTEM

In the current debates concerning data requirements and the means to satisfy them, there are many who would put all their faith in the capacities of computers to create data banks for the storage of all the figures now hidden in the files of government agencies--figures which, once centralized and made accessible, would supposedly solve the information problem. Yet, if one considers the state of the existing data as heretofore described, he will realize that such data banks would be totally inadequate without considerable further research on the quality of the data and on the means for ensuring their consistency and suitability for use in the development of comprehensive manpower information systems. He will discover that the proposed data banks would, at present, constitute little more than an electronically maintained equivalent to the existing statistical confusion.[1]

At the other extreme in the debates are those who would find the solution to the information problem simply in the expansion of census and survey efforts. There can, of course, be no quarrel with the desirability of more frequent censuses of population and of counterparts to the monthly Current Population Survey in the major urban areas; but, in the last few years, there has been almost as much sentiment in Congress for curtailing as for expanding census and survey activities. Moreover, in view of the many difficulties in obtaining data of defensible accuracy in poverty-area surveys, there could be no guarantee of adequate data even if means were to be found to finance additional population survey operations.

It should be made clear at once that no acknowledgment of the serious limitations of censuses and sample surveys of households in the urban poverty areas can diminish their necessity. Indeed, among statisticians and other professionals concerned with small-area data, there is a significant consensus in favor both of mid-decade and decennial censuses and of additional sample survey efforts as well. Naturally, these views are likely to be influenced by an understandable inclination toward conventional methods and by a perfectly justifiable fear that expenditures on innovative and untested programs might be used as excuses to curtail existing statistical activities of proven merit. Nevertheless, innovation is clearly necessary--along with the continuation of current censuses and surveys--if the needs for manpower information are to be satisfied.[1]

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[1] The naivete of much of the current thinking about data banks is made clear in several recent proposals for a national data center. See, for example, Edgar S. Dunn, Jr., Review of Proposal for a National Data Center, U. S. Bureau of the Budget, Office of Statistical Standards, Statistical Evaluation Report No. 6, Washington: U. S. Bureau of the Budget, December, 1965, pp. 22-24.

THE CONTRASTING ROLES OF AGENCY ADMINISTRATIVE DATA AND CENSUS AND SURVEY DATA IN AN URBAN MANPOWER INFORMATION SYSTEM

Implicit in the concept of a system of statistical information is the notion of integrating data from many sources (censuses, sample surveys and agency administrative records) so as to maximize the usefulness of alternative types of available--or potentially available--statistics by assigning to each source that specialized role in the overall system that is warranted by its particular advantages. Under such an arrangement, it is perfectly conceivable that administrative records at the various levels of governmental operations (including those of the Social Security Administration and the Internal Revenue Service) could, in time, obviate the need for such present census questions as those on employment status, income and other individual characteristics. Given the state of current statistical systems, it must certainly be admitted that such thinking is both visionary and impractical at present; but when the results of the statistical efforts now being made are compared with the overwhelming immediate requirements for information, it is clear that radical innovation is not only necessary but inevitable.

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[1] What with the limitations of present census and survey data, the alternative to innovative programs for Philadelphia's "North City," at least, is quite simply no adequate data at all. It should be observed, however, that some heed has begun to be paid to this fact: in

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June, 1968, the U. S. Department of Labor started an experimental sample survey program in the Concentrated Employment Program areas of Atlanta, Chicago, Detroit, Houston, Los Angeles and New York. The purpose was to produce detailed manpower information for the slum populations of these six cities.

There can be no question that census data will, for the time being, continue to occupy a dominant position in any successful urban information system, since these statistics are the only ones whose availability is reasonably assured; but this fact should not be allowed to eclipse the importance of other data sources or to deter the transition from mere speculation concerning their functions to active utilization of them in the system. In this connection, it is regrettable, for example, that local agency data cannot be subject to greater exploitation in the conduct of the coming 1970 Census. To be sure, the use now planned of Post Office records of addresses for the improvement of Census coverage in mailing questionnaires is a major step in the direction of utilization of government agency information; and so too is the Census Bureau's collaboration with local agencies in the preparation of address coding guides. But the most significant potential of local data for the purposes of the 1970 Census lies in their use as checks on the completeness and accuracy of Census results in an expansion of the evaluation studies already so successfully pioneered by the Bureau for earlier censuses.

The eventual role of agency data, combined with census and survey data in larger statistical systems, will doubtless depend upon the degree of success to be attained in overcoming institutional and technological obstacles to the integration of the agencies' information into those systems. Three distinct phases may be envisioned in the continuing process of obtaining greater utilization of agency data: first, the development of statistics on the populations being served by individual agencies; second, the coupling by analytical methods of agency data with census or survey data in a system of current and comprehensive estimates of characteristics of the general population; and finally, when efficient and inexpensive methods of record-matching become possible under appropriate safeguards of data confidentiality, the development of an entirely new kind of population census in which agency records--rather than household questionnaires--would constitute the basic source of data.

The Current Population Survey has amply demonstrated that well designed sample surveys, efficiently executed, offer much the same potential for comprehensive data on population characteristics as do the censuses; and they could also provide, just as well as the censuses, the bench mark data necessary to any system of current estimates for a major poverty area. But, as has already been shown (in the example of the tract estimates from the twenty-five percent sample of the 1960 Census),[1] the number of persons interviewed in a sample must be extremely large if the sampling error for estimates pertaining to small groups is to be kept within reasonable bounds. Even so, the costs of sampling on an appropriately large scale would still be less than the costs of additional censuses. It seems likely, therefore, that the use of sample surveys must increase as means to obtain the information necessary between censuses to supplement data from administrative records.

Until that time when it may become possible to develop more frequently recurring population censuses by means of the large-scale integration of data from agency records, the solution to the problem of urban manpower information must lie in a system for the regular provision of current estimates--a system in which administrative data from the operating agencies would constitute the basic source of "raw" statistics for the construction of comprehensive estimates, while censuses and sample survey data would contribute primarily to the design of mathematical methods of estimation and to evaluations of their adequacy. The concept of such a system is not novel in itself; it reflects the approach of most of the analytical methods currently used in the provision of intercensal estimates of population characteristics. Nevertheless, it differs from past thinking in one considerably significant respect, namely: its presupposition of the availability of administratively obtained data with quality and detail sufficient to support estimates, not merely of total population or of total unemployment, but of the entire range of information required to solve present manpower problems. The vision is of a truly comprehensive system of statistical intelligence based primarily upon the data-collecting activities of operating (as opposed to statistical) agencies, with census and survey data playing supplementary--if nonetheless essential--roles.

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[1] Supra, pp. 78-79.

DATA CONFIDENTIALITY AND THE PROTECTION OF PERSONAL PRIVACY

Statistical programs constitute no exception to the general rule that all government activity in the United States may exist only as long as it remains acceptable to a majority of the voting public. Indeed, they require much more than simple acceptance; they also depend upon the remarkable degree of public cooperation in responding to tediously lengthy questionnaires that has been responsible in large measure for the success achieved by the Bureau of the Census and other government agencies in obtaining presently available population data. It is true, of course, that individual cooperation has often been exacted by law (as in the case of the censuses) or, to some extent, by agency regulations as a condition for program participation (in the instance of data collected by the manpower and welfare agencies). Nevertheless, with or without such requirements, the requested information has heretofore been furnished with only rare complaint by a public convinced, not only that the data are necessary, but also that, since its responses are treated as confidential, there can be no undue invasion of individual personal privacy involved. In recent years, however, the combination of greatly increased demands for data on individuals and the rapid development of computerized facilities for the storage and dissemination of such information has raised serious questions with regard to the continuation of public acceptance of new statistical programs and of public cooperation in them. Even the operations of the decennial census have been challenged, despite its strict legislative safeguards of confidentiality and its unbroken record in protecting the privacy of the individual respondents.

Public concern over the many possibilities for undue intrusions into individual privacy has been manifested by the frequent instances of magazine and newspaper articles --and even books--dealing with the subject, by recent Congressional hearings, and by a number of legislative proposals of which several would, unfortunately, limit the scope of the 1970 Census. The issues involved are, indeed, much broader than those related to governmental collection and use of population statistics. They extend to questions of the propriety of the private information systems developed by such non-governmental agencies as the credit card and credit rating firms and to the especially serious problems posed by electronic and other means of physical surveillance of individual activity. Amid this general concern, however, it is the governmental statistical programs, strangely enough, which seem to offer the most tempting targets to persons and groups who desire action to eliminate possible abuses to individual privacy.

It should be recognized that at least some of those who would curtail existing government statistical activities are using invasion-of-privacy arguments to cloak their general opposition to federal economic and social programs. Surely they realize, consciously or unconsciously, that statistics are essential for the justification of governmental programs as well as for program management and that curtailment of the supply of information would be an effective curb to government action. While it is curious that many of the Census Bureau's antagonists seem more worried about its relatively innocuous questions on housing quality (e.g., the questions on bathroom facilities) than they are about more serious government intrusions into personal privacy (e.g., wiretapping), the intent of the present comment is not entirely to deny the validity of some of their arguments, but rather to consider the issues in a more proper perspective, with awareness both of the importance of statistical information and of the impeccable record of federal statistical agencies in the maintenance of data confidentiality.

However specious the blandishments against government statistical programs may appear to be at present, one dares not ignore the Orwellian possibilities that exist in the establishment of computer-based information systems. It is obvious that neither computers nor any other mechanical elements in the systems are in themselves necessarily invasive of personal privacy in any harmful way. It is, instead, the awesome prospect of human misuse of the capabilities of the machines that constitutes the threat to individual civil liberties; and it is this threat that must be eliminated if any profit is to be gained from the many opportunities offered by computers and by the better information they can afford.

Naturally, there is no real infringement of individual privacy in the release of summary measures of population characteristics for large groups of people, as, for example, employment totals, income averages or birth rates. Such data are published by government agencies with the strict observance of the simple criterion that no statistic be released from which information on any one individual could be deduced. The restriction is one imposed by more than statute or agency regulation; it is fundamental to the code of professional ethics among statisticians, a code which has been as rigidly observed as that of the medical and legal professions.

However, regardless of the matter of professional ethics, legal restrictions are essential on the release of data maintained in local information systems, if public confidence is to be sustained. Certainly, in the absence of a strong statutory safeguard to individual privacy, it should be unthinkable to establish a system for computer-matching and compilation of the data contained in various agencies' records. No data on any individual from such a centralized source should be released at any time for use by other individuals--not even to the personnel of the agencies that may have supplied the information in the first place--and all such data should even be exempt from judicial subpoena. Moreover, any local statistical agency established for the centralization of data would have to be as professionalized and as independent of domination by its sponsoring governmental unit as are the federal statistical bureaus themselves.

Many possibilities for the protection of privacy exist within the very operations, procedural and mechanical, of a record-matching and data-consolidation system. For example, sensitive items of data, such as criminal records or scores from psychological tests, could and should be excluded from the system; and it might prove desirable to place currency restrictions of five or ten years on individual historical information,[1] even at the expense of limiting the opportunities for statistical analysis of such phenomena as migration patterns. Finally, additional safeguards could be applied to enhance the physical security of computer operations in order further to prevent any unauthorized access to the individual computerized data files.

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[1] A number of such restrictions have been incorporated into a data system based on agency records now being developed by the United Planning Organization, Washington, D. C.

It cannot be denied that statistical operations of the type here under discussion do, by their very nature, intrude upon personal privacy to a slight extent; but this is hardly an issue that needs rehearsal. The significant problem is rather that, as far as interagency data programs are concerned, no strict guarantee as yet exists that the necessary invasion of privacy will bring no economic, social or psychological harm whatsoever to any single individual who has supplied data on his own personal characteristics. It would be a grave error to enact laws that might prevent the acquisition of such information; but equally serious would be the failure to develop the legislative and procedural elements of such a guarantee which, along with continuing public and private vigilance to prevent abuses of statistical systems, constitutes nothing less than a sine qua non for the urban manpower information necessary for useful and efficient manpower programs.

THE DEVELOPMENT AND INTEGRATION OF LOCAL DATA SYSTEMS

The apparently simple and easy assumption that centralization of agency data will provide the basic statistical resource for an urban information system leads one to still another series of questions. How, where, and at whose initiative will the development begin? Who will finance its activities? Who will carry out the work? How will agency cooperation and statistical coordination be secured? What will be the appropriate degree of centralization? And so the list of queries lengthens. The questions are deceptively simple, and there are no facile answers. For each there are alternative and inconsistent possible answers and insufficient grounds for choices of the correct ones. Federal and state agencies have had little or no guidance to offer with respect to the problems; and, as a result, city governments and individual local agencies have taken a wide variety of approaches to the development of data systems. While the differing approaches offer opportunities for comparative evaluations of system adequacy, they also present the risk of statistical inconsistencies which will inhibit inter-area comparisons of data and the exchange of information among governments.

Intergovernmental Aspects of Systems Development

The complexity of the problems of developing effective information systems has been made particularly evident in the recent report of an Intergovernmental Task Force on Information Systems which considered the impediments to such systems and the means for their removal.[1] All of the recommendations of this group's study are as relevant to the development of local manpower data systems as they are to other types of governmental information needs; and its major ones are indicative, not merely of some of the necessary action, but also of the fact--perhaps insufficiently stressed thus far in the present report--that many of the problems in the design of urban manpower information systems have aspects which transcend both the boundaries of the local area and the concept of manpower information itself. The recommendations would provide for the coordinated development of information systems within each level of government, for the organization of active consultation between governmental agencies at all levels to facilitate system development, for the pooling of information resources, for the sharing of technological experience, and for the establishment of statistical standards and arrangement for systems compatibility.

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[1] Intergovernmental Task Force on Information Systems, The Dynamics of Information Flow, Recommendations to Improve the Flow of Information Within and Among Federal, State and Local Governments, A report furnished to the U. S. Bureau of the Budget and other sponsoring agencies, April 1, 1968.

While the discussion of the report on information systems deals more with the broad outlines of needed action than with specific details of the systems, it is explicit on many aspects of the requirements for organization, coordination and financing. Information Coordinating Offices are proposed at each level of government to exercise centralized guidance over the development and organization of the various systems and subsystems, to provide professional expertise, to establish statistical standards, and to make periodic audits of system operations. It is suggested, moreover, that the Information Coordinating Offices not have operational responsibility for the specific information systems themselves, but rather that operations be left to other governmental units.

Financing of the statistical activities presumably would depend on a variety of governmental sources, although federal grants-in-aid are suggested for the initial costs of development and operations. The second of the Task Force's recommendations deals with the problems of obtaining such grants when many federal agencies and aid programs may be prospective sources of the much needed funds.[1]

Such other proposals as those for institutionalizing arrangements for intergovernmental consultation and for the sharing of experience in the development of information systems are clearly obvious needs, if interagency cooperation is to be obtained and if unnecessary duplication of effort is to be prevented. The report speaks in general terms of problems of "continuous reinvention of systems and techniques already in existence" and "unilateral development of hundreds of basically similar systems." Federal government leadership and assistance in the solution or elimination of such problems would clearly be desirable, with the possible specific actions at the federal level ranging from the provision of a model statute for state and local laws to protect data confidentiality to the development of standardized forms for the recording of personal information during local agency interviews.

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[1] It was noted that one particular proposal for an integrated information system involved six federal agencies and twenty different aid programs! The recommended Joint Funding Simplification Act would simplify the administration of grants-in-aid, allowing federal agencies to combine related grants into a single financial package.

It is apparent from a consideration of Philadelphia's statistical activities that it will be no easy task to secure the kinds of interagency cooperation discussed in the Task Force's report and necessary for an information system which draws its data from many sources. Even if a system were to be designed for a single area such as the "North City," agreements would have to be obtained on both policy and procedural matters from all the many agencies whose data would be desirable components of the pooled information resource. The prospects for cooperation among so many agencies would seem hopeless but for the fact that the urgency and complexity of manpower problems has already resulted in an unprecedented number of multiple-agency and intergovernmental cooperative programs and activities. It is only because of these recent achievements that one can speculate on the success of interagency statistical collaboration as a means to produce results for everyone that no single agency could obtain alone.

Developing Philadelphia's Existing Manpower Data Systems

The concept of a manpower information system is a convenient one for the discussion of data requirements and the means of producing them. However, there is no such system now in existence as a single entity at any level of government; nor, probably, will there ever be. At the federal level there are, instead, the Bureau of the Census, the Bureau of Labor Statistics and many other agencies, all working in relative independence with their efforts coordinated by the Office of Statistical Standards of the Bureau of the Budget and through the offices of interagency committees. Somewhat similar arrangements may be found in the statistical organizations of state and local governments, although usually in a far more rudimentary form.

Philadelphia's existing statistical systems, as the second volume of this reports makes clear, are adjuncts of its various governmental service programs and are as decentralized and uncoordinated as the programs themselves. While it might be argued that a city of approximately two million persons should posses an information-gathering agency independent of particular operating programs, there appear even stronger arguments for continuing and strengthening the present decentralized arrangements; for--apart from the costs of programs for the direct collection of needed statistics--there are major advantages to be afforded by the agency-client relationship now present in the interviewing and data-collecting activities of the government service programs.

It would be desirable to strengthen and expand the individual agency information systems even if there were no prospects for data sharing, since so much potentially useful data lie buried and inaccessible in the agency files. Whether one considers the school systems or the public employment service or any of the other local programs investigated as part of this project's research, the findings are the same: inadequate budgets for statistical activity have precluded facilities and staffs sufficient and necessary to convert much of the available data inscribed on individual records into information useful even for the agencies' own managerial decisions. Not the least of the many benefits which could be obtained from action to develop a coordinated interagency statistical program, therefore, would be those accruing to the agencies themselves through more intensive internal use of their own data resources.

The extent of the development of individual agency statistical programs varies widely. Several agencies have progressed to such a degree that highly sophisticated use of computers in data-processing activities is now possible. Of particular note is the achievement of the public school system in assembling data obtained on individual students from several hundred schools and in tabulating this information, not only by school, but, with the aid of a computer program for the coding of addresses, by census tract and even by city block of students' residences as well.[1] The statistical distributions by age, sex and race so obtained are of critical value for facilities-planning, capital-budgeting and other administrative uses; and, in addition to their value for school administration, they constitute a most important demonstration of the feasibility of large-scale statistical operations involving matching and merging of individual information from many locations into statistics by residence as well as by place of activity.

The success of this element of the public schools' data program would probably not have been possible without another locally developed statistical resource: the real property location index (or address coding guide) of the city's Department of Finance. The index is a product of the city's continuing and detailed inventory of all its more than half a million parcels of land; and it is available for purchase in book form or on computer tape.[1] Its existence is another illustration--one of many that could be mentioned--that Philadelphia already possesses many of the means necessary to satisfy its own information requirements and that the present need is simply for acceleration of the systems development now well under way.

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[1] For a discussion of the public schools' data bank see the second volume of this report, pp. 28-30.

Currently, Philadelphia lacks an agency with the functions and powers of the Information Coordinating Office proposed by the Intergovernmental Task Force on Information Systems. In addition to coordination activities and development of statistical standards, such an office could prove vital in stimulating the city's further development of area information systems. However, Philadelphia does have within its government the Management Information Advisory Council, a sizable and well organized consultative group made up of representatives from its major agencies and charged with broad responsibilities in the development of a comprehensive system of managerial information for the purposes of all departments of the city's government. It ranks as a highly suitable prototype for the kind of intergovernmental consultative group that must eventually link state and federal activities--as well as local government efforts--in the design of information systems.

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[1] Further discussion of the location index may be found supra, pp. 38-39, and in the second volume of this report, pp. 125-126.

The major problem in the evolution of local systems is undoubtedly the economic one of financing new activities. Agency statistical budgets are barely adequate in many instances to maintain the functions now performed. As Philadelphia's public school system recently discovered, it is true that, besides new kinds of statistical information, computerization of activities may also produce more efficient and less expensive ways of accomplishing existing operations; but the initial costs of innovation remain forbidding for most agencies. Although interagency sharing of computer resources might contribute toward minimization of these costs, local manpower information problems, like local manpower problems in general, may well be resolved only with the help of substantial federal assistance.

Prospects for Local Centralized Data Facilities

The notion that data obtained from local manpower agency operations may be pooled as a centralized statistical resource presupposes the existence of a data center capable of the activities involved in translating multitudes of individual items of information supplied by many agencies into more comprehensive types of manpower statistics. Such a center would have, at a minimum, two major functions: first, the processing and conversion of data on individual persons into tabulations of summary statistics, and, second, the preparation and publication of comprehensive manpower estimates based on these summary data. It would be premature, however, to attempt to detail here the organization and functions of a central local data facility at length; for the present research has not been extended into many of the relevant technological and procedural questions involved. Indeed, since there are few precedents for such an operation, it is likely that the initial efforts of any central information agency would require a considerable amount of experimentation and subsequent accomodation to the circumstances encountered.

Presumably, the organization and operations of a local data center would be analogous in a number of respects to those proposed by the Kaysen Report[1] for a National Data Center (except, of course, that local agencies would be the primary contributors to and beneficiaries from the center's activities rather than federal ones). As in the National Data Center proposal, it is even conceivable that manpower data would be only one of the several kinds of economic, demographic and social information for which a local center would bear responsibility. Aside from these speculations, however, the chief relevance of the Kaysen Report to the present considerations lies in its recognition of the problems and inefficiencies of decentralization of government statistical programs and in its suggestions for the gradual evolution of new and centralized statistical activity as a supplement to existing programs. It recommends that the new federal organization be "started on a sufficiently firm basis to permit it to survive the inevitable birth trauma" and that thereafter its activities relative to those of other statistical agencies be determined on the basis of which agencies can and will provide "quicker, cheaper, and better sources to meet rapidly expanding demands." Such suggestions appear as eminently appropriate guidelines for the gradual development of innovative local counterparts to the proposed National Data Center.

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[1] The Kaysen Committee (or, simply, Kaysen) Report, formally titled Report of the Task Force on the Storage of and Access to Government Statistics and dated October, 1966, was submitted to the Director of the U. S. Bureau of the Budget. Its proposal for a National Data Center envisages the establishment and maintenance of an integrated inventory of all relevant and available federally obtained data as well as those potentially to be supplied by cooperating state and local governmental units. The Center would have both operational and research functions and would be an independent organization within the Executive Office of the President.

In order that it might possess the necessary flexibility to pursue its developmental tasks, it is important that any newly created local data center should be adequately supplied with a technologically skilled staff and with ample access to computer facilities. Initially, its programs for integration of agency-supplied data might very well be conducted on a limited basis, dealing, perhaps, with only two or three of the major data-producing agencies, for the purpose of innovating and testing procedures. Whatever form the early activities of a a centralized data agency might take, its organizational framework ought certainly to provide every assurance of data confidentiality, interagency cooperation and statistical coordination, and ultimate expansion into a truly functional multiple-purpose information system.

REQUIREMENTS FOR ADDITIONAL RESEARCH

No one need be told that research is a continuing process. It must be particularly so in the matter of the initial design of any urban manpower information system and in its subsequent development and activity, in proof whereof it will be observed that far more questions seem to have been raised in this present report than have been adequately answered in it. Equally clear is the fact that still additional questions are certain to arise as the various local, state and federal agencies continue in their efforts to resolve their many information problems. Apart from the technological and procedural issues involved in the evolution of agency programs for the utilization of data and in the initial organization of centralized statistical operations, there are many problems that will only be encountered in their full complexity at such time as more data begin to become available from the newly devised information systems.

Technical aspects of record-matching and data-merging may be expected to prove particularly troublesome, considering the relatively primitive state of many of the agencies' present data-accumulating operations and the variety of forms and procedures now in use among them. And, while the basic technology of data-processing has undergone substantial improvement in recent years, it must be recognized that each instance of its application presents new problems of a developmental nature. The process of experimentation and improvisation that will be required for adequate solutions to these technical and procedural problems cannot but be a lengthy one. For this reason, and in view of the pressing immediate needs for data, any further delay in the initiation of this process could lead to deplorable consequences.[1]

Even less developed than present data-processing technology are existing methods for the conversion of such statistics as would surely result from any centralization of agency data into suitable estimates of area manpower characteristics. A large body of literature does, indeed, exist on the techniques of estimation for the most general types of population measurements relating to large areas;[1] but little has been accomplished in the way of methodological research for the kinds of detailed estimates which this report proposes for poverty-area manpower. Nor can such research be adequately begun until the essential agency-derived data have, in some measure, been provided. Equally important, moreover, is the research requirement on the accuracy of alternative methods for the preparation of estimates. This, in turn, must await, not only the availability of estimates produced by competitive methods, but also that of data from alternative sources (whose error characteristics are known) in order that comparative analyses may be conducted.[1]

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[1] It would be highly desirable for local agencies to begin immediately with explorations of the nature of the problems to be encountered. Pilot studies and simulations of needed system activities could easily be conducted with the assistance, perhaps, of area university research staffs and other research organizations, the financing to be obtained from federal or state grants-in-aid. For a discussion of a number of elements of the problem of record-matching and a bibliography of relevant works, see Benjamin J. Tepping, "A Model for Optimum Linkage of Records," Journal of the American Statistical Association, vol. 63, no. 324 (December, 1968), pp. 1321-1332.

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[1] See, for example, the publications of the U. S. Bureau of the Census on population estimates and projections; the handbooks on estimation of the U. S. Department of Labor, Bureau of Employment Security, published for the guidance of local labor market analysts; and, of course, the many relevant articles in the journals of the statistical and demographic professions. The literature of projections and forecasting is generally relevant because of its portrayal of models which utilize both historical and current data with methodology equivalent to that employed for current estimates. A summary and critique of federal manpower projection activities may be found in U. S. Department of Labor, Manpower Administration, Manpower Projections: An Appraisal and a Plan of Action, Washington: U. S. Department of Labor, August, 1967. For an assessment of the state of small-area methods see the articles and discussions in Proceedings of the Social Statistics Section, 1967, American Statistical Association, Washington: American Statistical Association, 1967, pp. 2-27.

The areas in which research is so urgently needed are far broader than the ramified technological and methodological difficulties just described. They extend through the entire span of protean subject matter in the present report and include further investigations into the appropriateness of poverty-area and statistical-area definitions and designations, into the nature of the constantly growing requirements for manpower information, and into the adequacy of all types of data, their underlying measurement concepts and their methods of provision. Questions concerning the development and maintenance of statistical standards and coordination and of data confidentiality must be added to the list. Yet, even as the catalog of research requirements lengthens, it is imperative that no confusion be tolerated between the needs for research and the infinitely more pressing needs for the immediate initiation of new data programs. No statistical system can or has ever been organized with all of its developmental problems fully resolved or even anticipated in advance of its founding. Rather, systems of this kind must evolve in an ever continuing process of mutually concomitant research and action. Naturally, mistakes will occur in the course of developing the necessary systems--an unfortunate fact from the standpoints of time and resources expended. But such losses will surely seem negligible when compared with the steadily accruing costs of the national failure thus far to resolve its overwhelming --and still mounting--manpower crisis.

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[1] Evidence has been produced in studies of the accuracy of methods of estimation that techniques efficient for large areas may be less satisfactory for the small ones. See, for example, Meyer Zitter and Henry S. Shryock, Jr., "Accuracy of Methods of Preparing Post-censal Population Estimates for States and Local Areas," Demography, vol. I, no. 1 (1964), pp. 227-241. Similar findings appear in an exploratory study of methods of accuracy analysis for manpower projections conducted by one of the present authors under a grant from the U. S. Department of Labor, Manpower Administration: John H. Norton, Accuracy Analysis for Projections of Manpower in Metropolitan Areas, Washington: The George Washington University, 1967. A bibliography of other references on the subject of accuracy analysis and related topics also appears in the latter publication.